GS/PREMIUM22P

TECHNICAL MANUAL

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SAELEN® TS INDUSTRIE®

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RÉPUBLIQUE FRANÇAISE

INPI
INSTITUT NATIONAL DE LA PROPRIETE INDUSTRIELLE

BREVET D'INVENTION

Code de la propriété intellectuelle-Livres VI

DECISION DE DELIVRANCE

Le Directeur général de l'Institut national de la propriété industrielle décide que le brevet d'invention n° [illegible] dont le texte est ci-annexé est délivré à :
SAELEN S.N.S. Société anonyme - FR

La délivrance produit ses effets pour une période de vingt ans à compter de la date de dépôt de la demande, sous réserve du paiement des redevances annuelles.

Mention de la délivrance est faite au Bulletin officiel de la propriété industrielle n° [illegible] (n° de publication [illegible]).

PATENT FOR INVENTION

Intellectual property law-Books VI

GRANTING DECISION

The General Manager of the National Institute of industrial property has decided that invention patent # ##-##### the text of which is appended shall be delivered to:
SAELEN S.N.S. Company - FR

The delivery produces its effects for a period of twenty years starting on the date of deposit of the application, under reserve of payment of the annual royalties.

Mention of the delivery is made in the Official Bulletin of industrial property ###/## of ##:##:## (publication # # ### ###).

D. HANGARD

INSTITUT NATIONAL DE LA PROPRIETE INDUSTRIELLE
SIEGE
26 bis, rue de Saint Petersbourg
75800 PARIS cedex 08
Téléphone : 01 53 04 53 04
Télécopie : 01 42 93 59 30

ETABLISSEMENT PUBLIC NATIONAL CREE PAR LA LOI N° 51-444 DU 19 AVRIL 1951

INTRODUCTION

Thank you for your purchase and your confidence in us.

It is important to read what follows in order for you to fully benefit from your purchase.

Although this machine is simple and easy to use, we recommend reading this manual before starting to use it.

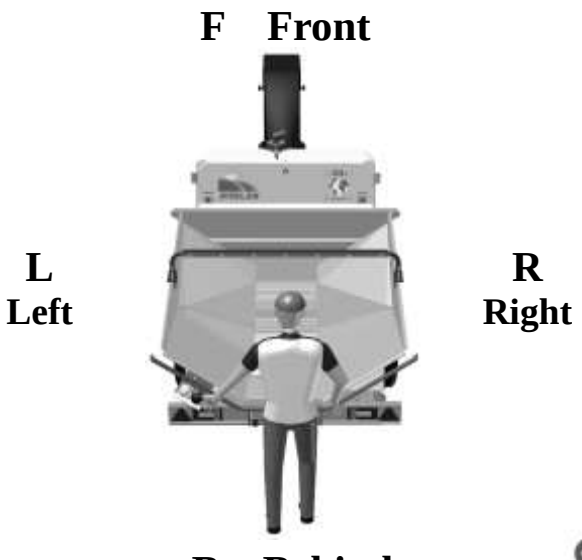
In order to operate your multi-vegetation chipper in a safe, efficient and effortless manner, you need to be familiar with the instructions for operation, maintenance and problem-solving that are described in this manual.

This manual describes all the functions of the **PREMIUM** chipper. Keep it within reach for later reference. Please contact your reseller for more information, technical data or if you want to order an additional copy of this manual.

Safety precautions:

This machine is **only suitable** for **chipping vegetable waste.** It may not be operated by persons **younger than 16.**
The machine should only be used by persons who have a **good physical condition and a certain technical knowledge.**
Maintenance must be done by a **qualified technician.** All interventions for assembly, disassembly and/or specific maintenance must be handled by a recognized distributor. Before working on the PREMIUM for maintenance or other purposes, **please remove the ignition key.**

Position of the operator: left, right, in front of and behind in this manual are as seen by the operator from his work station, facing the hopper.



INTRODUCTION

Safety instructions

This machine is **only intended for crushing and shredding plants.**
Besides shredding wood and plants, the **PREMIUM** shredder cannot be used for any other purpose.
The shredder should only be used by people over **16 years of age.**

This machine can only be used by someone who is **in good physical condition and who has some technical knowledge.**
Maintenance and repair work should be done by a **qualified technician.** Assembling, disassembling and/or specific maintenance work should be performed by an authorized dealer.
Before beginning work or proceeding to maintenance of the PREMIUM, **always remove the ignition key.**
Proceed to maintenance by scrupulously following the instructions.
Eliminate pieces of metal, plastic, rubber or any other materials that may have been mixed with the wastes.
Always use protection goggles, work gloves and protection against noise;
The machine can in no case be used to transport equipment, material or people.
The machine cannot be used to push or pull anything.
Battery acid is very corrosive. Avoid any contact with the eyes, skin and garments. Immediately rinse eventual splashes with water and if the case arises, consult a doctor.
Before touching the electric circuit, always disconnect the cable connected to the battery's + terminal.
Always keep the battery out of reach of children.
When performing maintenance, do it in a sufficiently lit workshop.
Respect the safety standards prescribed in the motor's user and maintenance manual.
Keep children away while the machine is in operation or when performing maintenance work; Do not work in confined space. Do not run the motor in a non ventilated place (risk of CO^2 intoxication)

LOCATION OF THE SERIAL NUMBER

When you order spare parts or if you need technical information, please always have the serial number of your **PREMIUM** shredder.

The manufacturer's nameplate is located on the chassis at the front left.

The serial number is located at the place indicated on the photo, it is always composed of **five figures** sometimes followed by a letter.

Serial number

GUARANTEE

The **TS Industrie** Company guarantees the parts of its **PREMIUM** shredders against any defect that could affect their operating. The guarantee applies in all the cases where the damage is not the result of improper use, abuse or negligence, accidental, act of God or any other circumstance beyond the control of **TS Industrie**. This guarantee extends over a period of one year starting on the date of delivery to the customer and is limited to the replacement of defective parts and/or of labour.

GUARANTEE CLAIM

A claim in due form shall be presented to **TS Industrie**, by the origin purchaser for inspection by an authorized representative of the company.

LIMITS OF LIABILITY

This guarantee replaces all other formal or implicit guarantees as well as any alleged obligations or responsibilities. We do not assume nor authorize third parties to take responsibility for the sale of a plant shredder.

This guarantee does not apply to a shredder that has been modified out of our workshops and that, according to TS Industrie standards, would be affected in its operation, its safety and its service life.

This guarantee does not cover parts and accessories that are already under their manufacturer's guarantee and the servicing of which is covered by the latter's administration. Service items such as lubricants, belts, paint and similar are not subject to guarantee.

USER MANUAL

The purchaser acknowledges having received instructions concerning the correct operation of the shredder and also acknowledges that **TS Industrie** cannot assume any responsibility resulting from the use of his product other than that described in the user manual supplied at the time of the purchase.

DO NOT FORGET TO REGISTER YOUR GUARANTEE OTHERWISE IT WILL BECOME INVALID.

SAFETY

You are responsible for the safe use and the maintenance of your plant shredder. You should thus make sure that whoever uses, maintains and works with the appliance has knowledge of the operating and maintenance methods as well as the safety measures to apply as described in this manual. The user manual informs you on the security practices to apply when using the plant shredder.

Remember that you are the person in charge of security. Efficient precautions will protect you as well as those around you. Make sure that ANYONE working with this appliance knows how to operate and maintain it. It is very important to prevent accidents. to avoid injury, respect the security measures explained in this manual.

- Before using the plant shredder, an owner has the duty of giving the user instructions to operators or eventual employees.

- This equipment's most important safety device is a safe operator. It is an operator's duty to read and understand all the security and operating instructions and to scrupulously follow them. The best way of avoiding accidents.

- No one is supposed to handle the **PREMIUM** shredder if they have not read and understood the instructions on the subject. An operator without knowledge exposes himself and others to risks of accidents.

- **It is not allowed to modify the equipment in any way whatever. Any non authorized modification could affect the operation or the security and eventually reduce the equipment's service life.**

THINK CAUTION!
WORK IN COMPLETE SECURITY.

GENERAL SAFETY

1) Read and understand the user manual and all the security symbols before operating, maintaining, un-jamming or adjusting the shredder.

2) Keep a first aid kit in case of accident.
Keep it in a visible place.

3) Keep a fire extinguisher within reach in case of need. Keep it in a visible place.

4) Use appropriate protection equipment. Here are a few suggestions, but do not limit yourself just to this description:

-Helmet and ear protection

-Work shoes with steel non-skid soles

-Protective goggles

-Work gloves and waterproof garments

5) Never operate without the protector.

6) Keep people away and especially children, when you are using the shredder.

Signification of the security adhesives

Read and understand the user manual and all the security symbols before operating, maintaining, un-jamming or adjusting the plant shredder.

Protection against noise

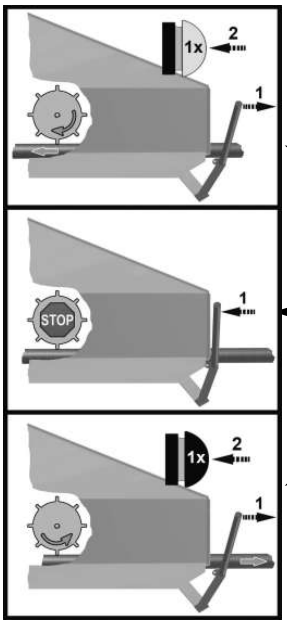
Protective goggles

Work gloves and waterproof

Danger rotating knives

Minimum engine speed Maximum engine speed

Lubrication point



<u>Rotation commands of the conveyor belt:</u>

0 : Chipping material (forward operation)

1 : Stop the rotation of the feed rolls

2 : Releasing material (backward)

SAFE USE

1) Read and understand the user manual as well as all the security signs before any operating, servicing, adjusting, repairing or un-jamming manoeuvre.

2) Install and make sure that all the protectors and guards are well fixed before starting or working.

3) Keep hands, feet, hair as well as clothing out of reach of parts in movement.

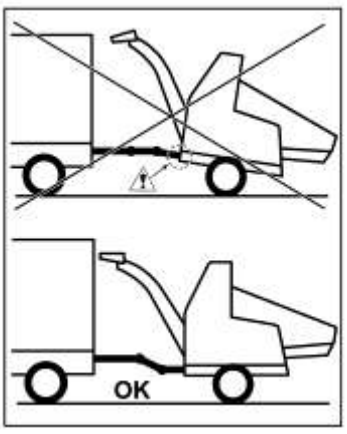
4) Before performing maintenance, adjustments, repairs or un-jamming of the machine, put the engine in idle speed with the accelerator handle, wait till all moving parts have stopped, stop the engine.

5) Place all controls to neutral before starting the machine.

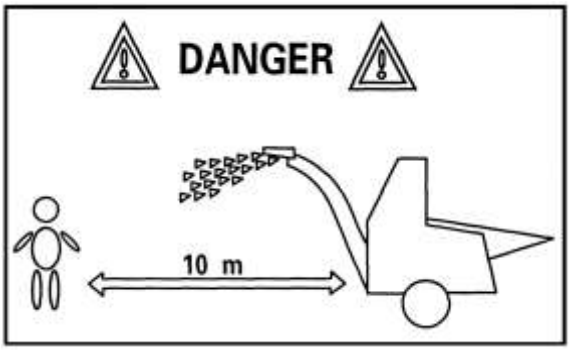
6) Keep people away, especially children before starting.

7) Use protections appropriate to the work to undertake.

8) Always couple the machine horizontally. To avoid making the machine swing, always work in a horizontal position if the machine is unhitched.



9) when shredding, risk of projections of chips within a 10 metres radius.



SAFE MAINTENANCE

1) Follow all the indications in the user manual concerning operating, maintenance and security.

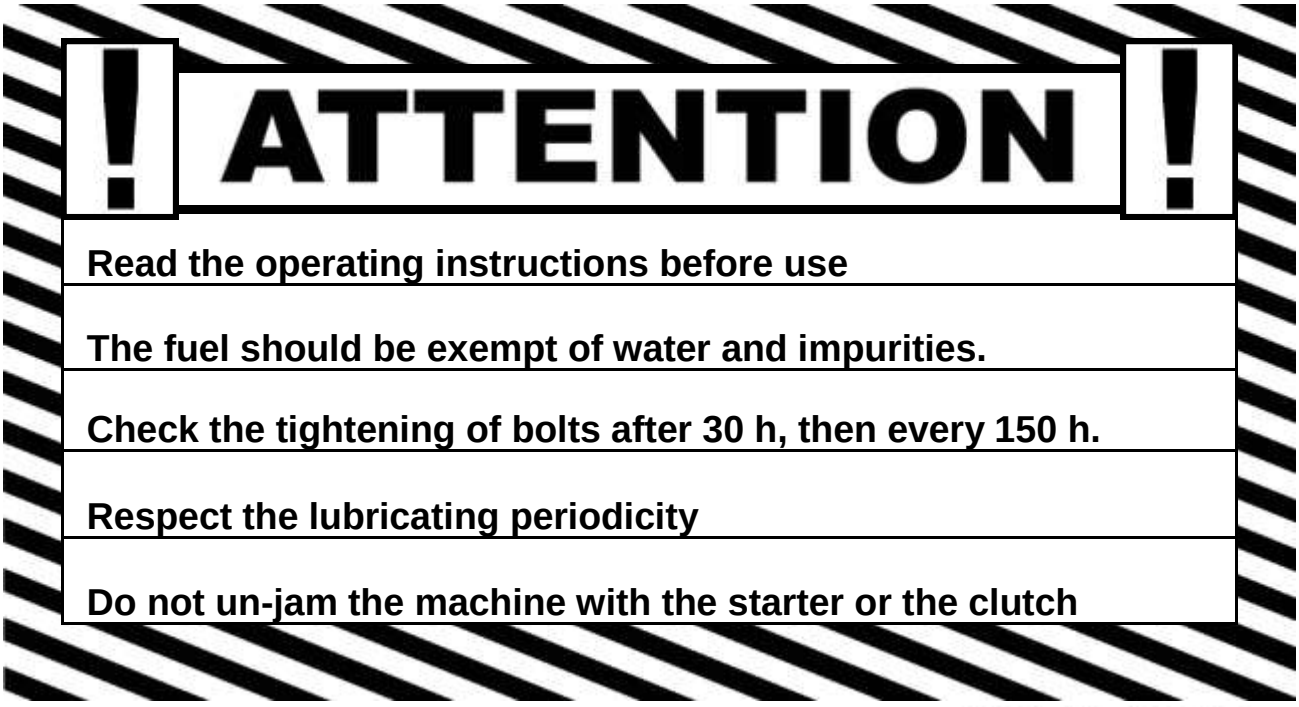
2) Before performing any maintenance, adjustment, repair or un-jamming of the machine, put the engine in idle speed with the accelerator handle, declutch the machine and wait till all the parts in movement have stopped, stop the engine, remove the ignition key.

3) Make sure that all the protectors and guards are efficiently fixed after performing maintenance or servicing the shredder.

4) **Warning!** Keep hands, hair and clothing out of reach of moving parts.

5) Install and make sure that all the protectors and all the guards are well fixed before starting or working.

6) Never wear badly cut, too loose or shredded clothing when working on command system components.

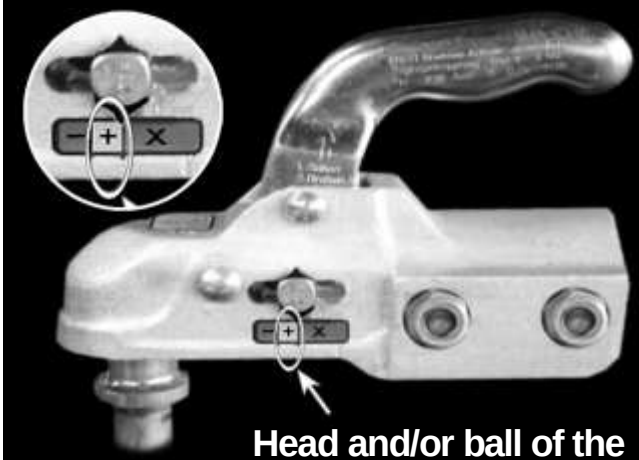

! ATTENTION !
Read the operating instructions before use
The fuel should be exempt of water and impurities.
Check the tightening of bolts after 30 h, then every 150 h.
Respect the lubricating periodicity
Do not un-jam the machine with the starter or the clutch

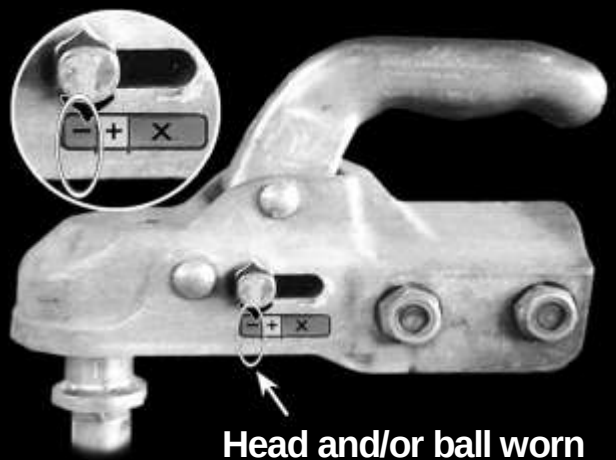
SAFE TRANSPORT

1) Comply with the traffic code.
2) Check if the signalisation lights of the equipment are appropriate and in working order.
3) Lower your speed on uneven roads and surfaces.

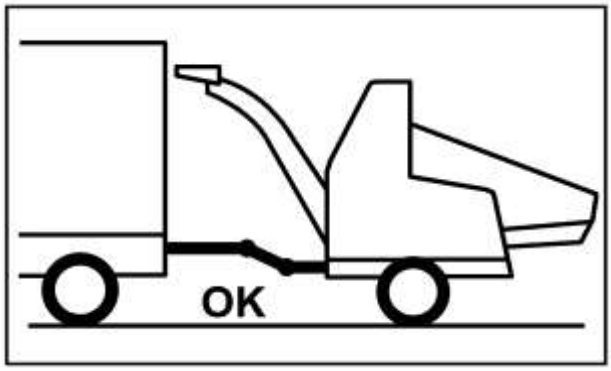
Wear of the coupling:
Check the wear indicator when coupling the machine.
Systematically repleace the had and/or the ball of the coupling of the vehicle if the indicator is in the MINUS zone. You might loose the chipper on a bump in the road or against a border.

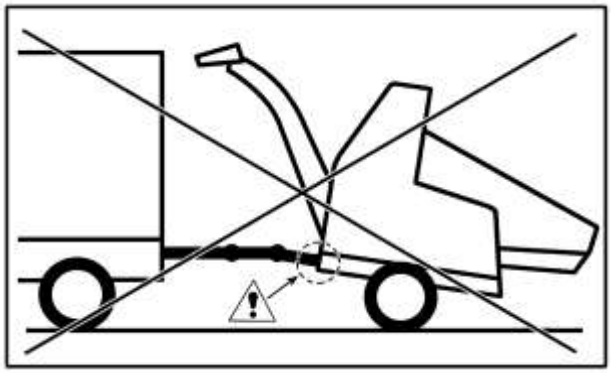
YOU ARE RESPONSIBLE IN CASE AN ACCIDENT HAPPENS.





Hitching to a vehicle:
Always hitch the shredder in a horizontal position in order to prevent the machine from tipping backwards AND check that the tow bar's nut joints are secure on a daily basis to prevent jolting which would damage the hitch and tow system and reduce its lifespan.





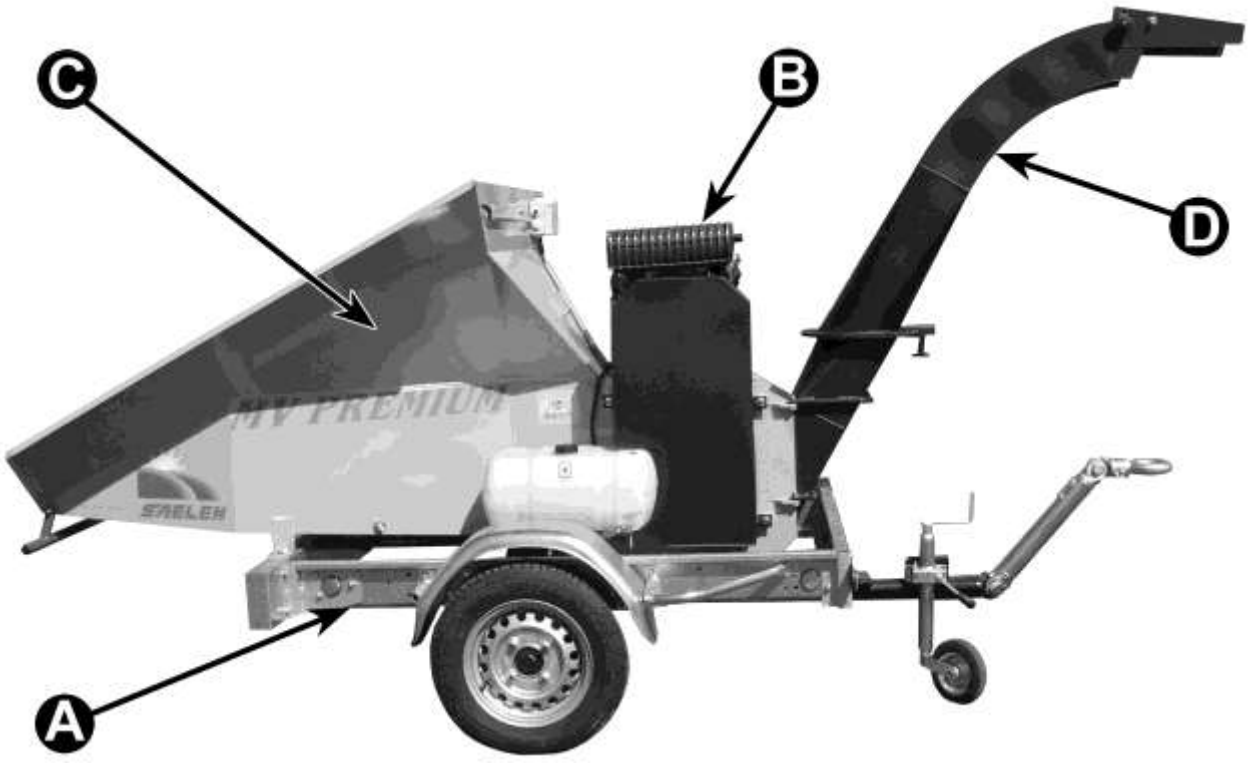
GENERAL DESCRIPTION AND OPERATION

DESCRIPTION

The **TS Industrie PREMIUM** multi plant shredder is intended for the shredding of plants and branches up to 100 mm in diameter.

The machine consists of the following main components:

(A) : the chassis
(B) : the shredding unit
(C) : the engine and its various drives
(D) : the evacuation shaft



GENERAL DESCRIPTION AND OPERATION

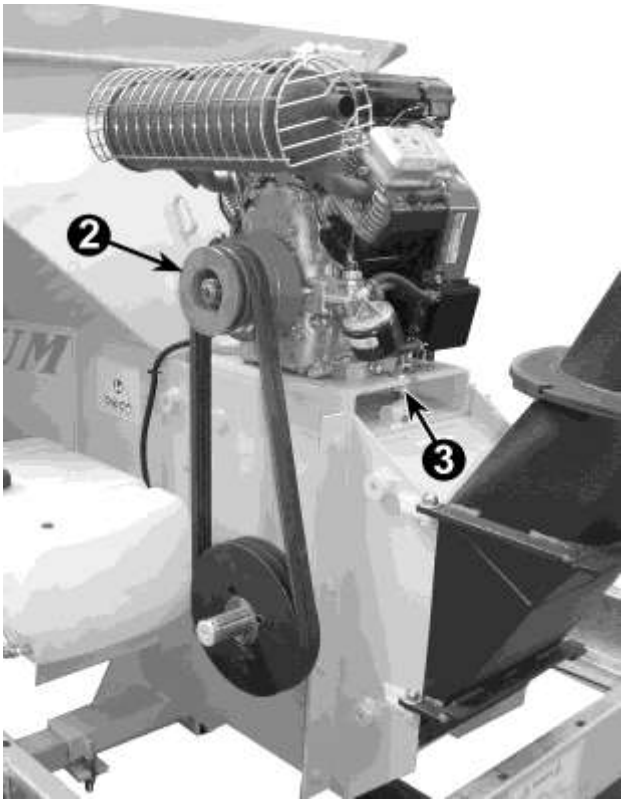
A. The chassis.
The shredder's chassis serves as support to various PREMIUM components. It allows displacing the machine by itself.

B. The engine and its drives
The petrol or diesel heat engine is located on top of the shredding unit, it supplies the energy needed to drive the rotor and the hydraulic system's oil pump **(1)**.
A 22 HP VANGUARD twin cylinder petrol engine or a 27 HP LOMBARDINI Focs three-cylinder diesel engine with liquid cooling, both at 3600 rpm. For additional information on the engines, please refer to the manufacturers' manuals.
The outlet shaft is equipped with a pulley **(2)** activating two belts ensuring the rotation of the shredding rotor. The tension of the belts is adjusted with an idler pulley **(3).**

The hydraulic system's oil pump located on the heat engine activates the feeder's hydraulic drive.

Petrol model 22P

Diesel model DRI



The feeder's
hydraulic drive is activated by a handrail **(1)** located under the rear end of the feed hopper.

C. The shredding unit

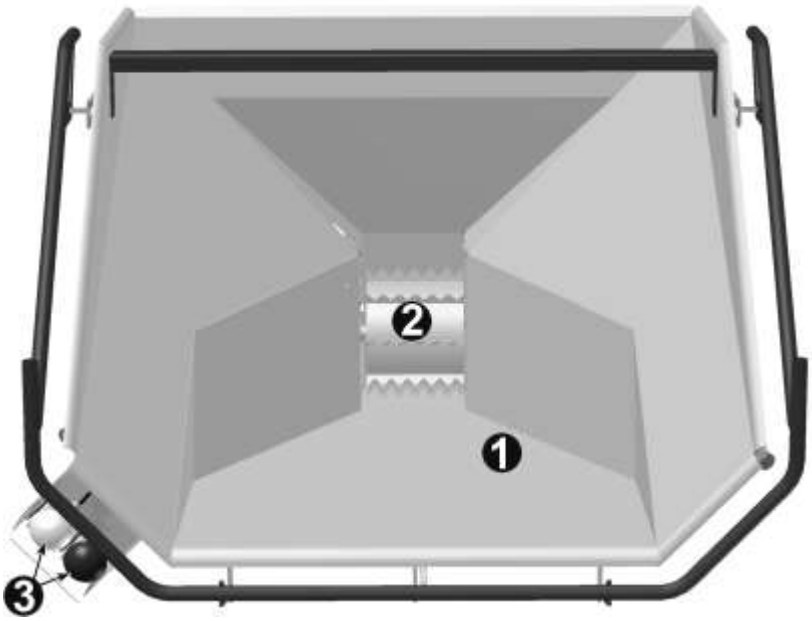
It is made up of a feed hopper **(1)** a feed roller **(2)** with serrated bars and a rotor that shreds the matter.

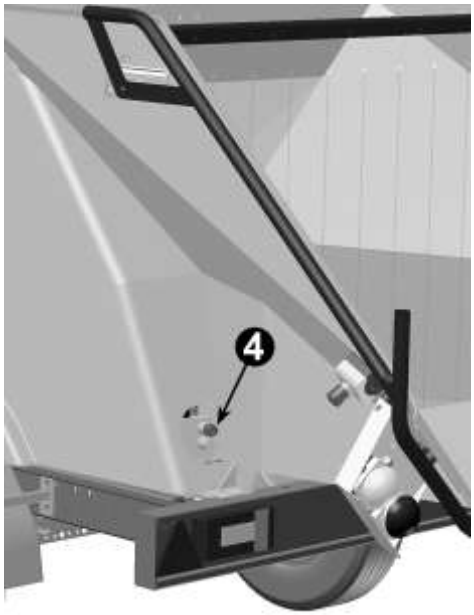
1) Feed cylinder

It leads the matter at constant speed toward the shredding rotor. An anti-jamming system stops the latter when the rotor's speed descends too low (jamming at shredding level), it automatically starts rotating again when the rotor picks up sufficient speed to shred correctly.

It can be activated in both rotation directions (forward and reverse run) with the pushers command **(3)** .

Its rotation speed is adjustable with the knob **(4)** located on the distributor





2)

Shredding rotor:

Key element of the machine, it shreds the matter brought by the feed roller.

D. The shaft.

Allows the evacuation of chips. Its upper part swivels over + 180°. Its cap is adjustable in vertical inclination.

STARTING

OPERATING OF THE FEEDERS' COMMANDS

The PREMIUM is equipped with an electric command hydraulic distributor activated by 'mushroom' pushbuttons for the forward and reverse drives and a red 'hand rail' command bar for stopping the feed roller.

NB: to make the feed roller run in forward drive the engine has to run at maximum speed.

FORWARD RUN COMMAND

1: To make the feed roller run in forward drive the red handrail should be pulled backward
2: Press the **yellow** pushbutton to make the feed roller run in forward drive.

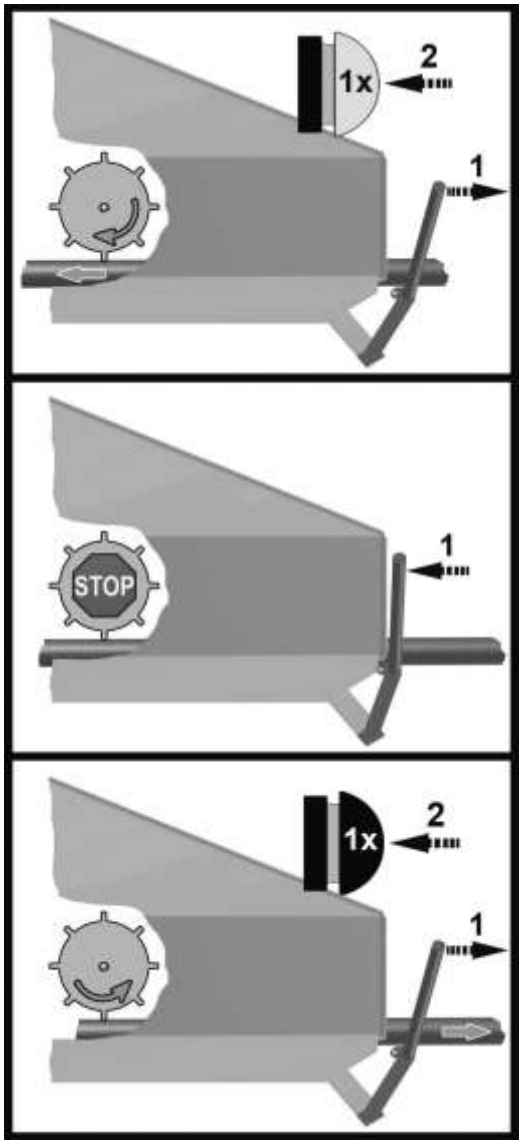
FEEDER STOP COMMAND

1: Push the red handrail to stop the feed roller.
(the handrail can be locked in pulled position and in pushed position)

REVERSE RUN COMMAND

1: To make the feed roller run in reverse drive, first pull the handrail backward
2: And press the **black** pushbutton

NB: The feeder can be directly controlled in forward or reverse run without moving the handrail



STARTING

CHECK BEFORE STARTING

Every operator should read and understand all the inscriptions and should follow the safety measures described in this section for sure and efficient shredder operating. A checklist prior to use is supplied to the user. It is important to take it into account for the security of all as well as to keep the machine in good condition.

The following points should be checked before using the machine:

1) Is the machine sufficiently lubricated according to the lubrication plan indicated in the user's manual.
2) Check the different levels for the engine, being:
   the engine's oil level
   the radiator's water level
   the gas oil level
3) Check the hydraulic circuit's oil level.
4) Make sure the air filter is clean.

STARTING

WARNING!

If for an unknown reason the shredder has difficulty shredding the matter, and that you have to stop it: **do not start the engine again without having eliminated the cause and cleared the matter out of the shredding rotor!!!**

PUTTING IN SERVICE

1) Check that the cap at the end of the shaft is open.

2) Slightly accelerate the engine's throttle lever
   - engage the starter on petrol model
3) Start the engine with the ignition key.
   - preheating on the diesel model
   - remove the starter (petrol)
4) Accelerate the engine at half-speed.

Petrol model

<u>Make sure the cutting rotor is placed in rotation and that it is not jammed by residue of matter that would prematurely damage the centrifugal clutch</u>. *(see advice when stopping on next page and page 44)*
Let the engine rise in temperature.

Diesel model

5) Accelerate the engine's speed to bring it to its maximum speed.

6) Make sure the red control bar stopping the feeder is pulled out in rear position.

7) Put the feed roller in rotation by activating the yellow control pusher located on the rear left of the branches intake hopper.

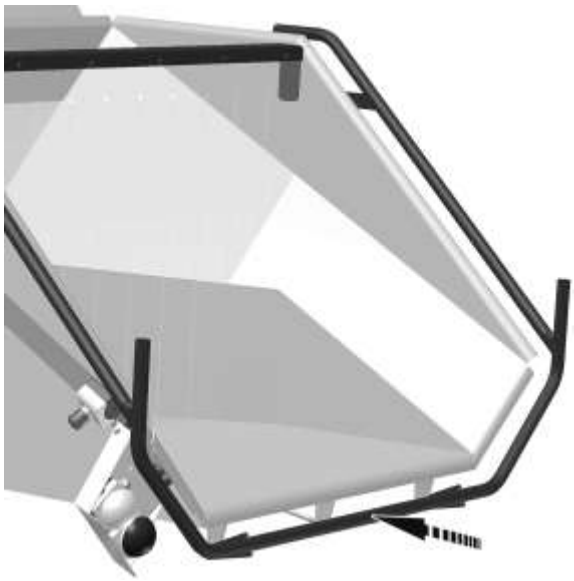
8) Start the shredding.

STARTING

STOPPING

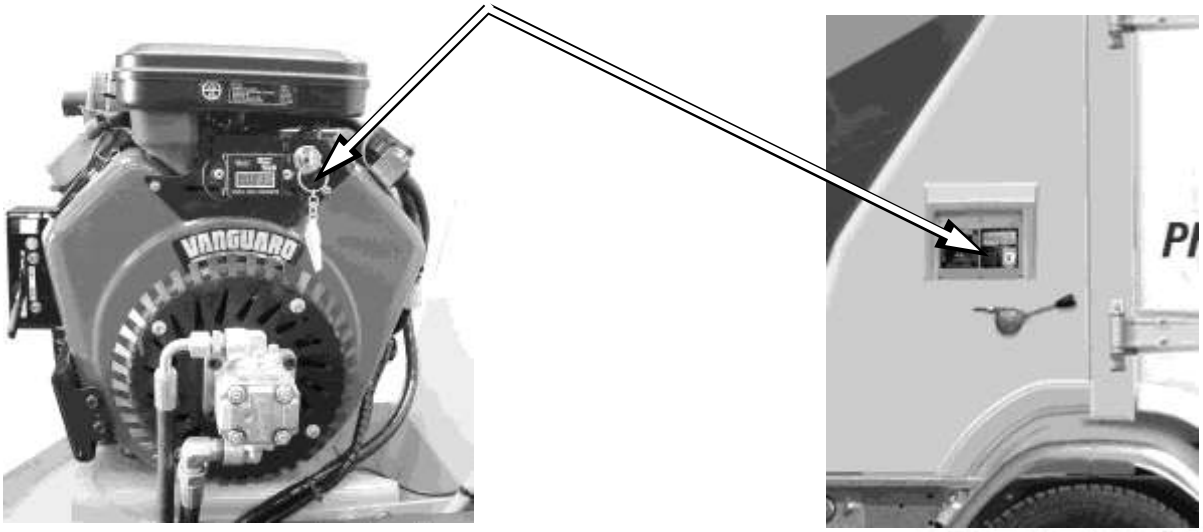
1) **<u>Let the shredder empty itself for a few minutes to eliminate residue of matter behind the feed roller and inside the shredder, which could jam and prematurely damage the clutch at the next start.</u>**

2) Push the control bar forward to stop the feed roller



3) Progressively bring back the throttle lever to idle.

4) Stop the engine by turning the ignition key on the control panel.



Petrol version

Petrol version

MAINTENANCE

MAINTENANCE SECURITY

1) Put the parking brake on, remove the ignition key and wait till all the moving parts have stopped before performing maintenance or repairs.
2) Make sure you put back all the protection screens after servicing.

LUBRICANT and FUEL quantities:

Petrol Engine: 1,6l.
Diesel Engine: 2,4l.
Fuel: 25l.
Hydraulic oil: 23l.
Hydraulic coupler oil; 1,14l.

Advised **LUBRICANT**:

1) Grease for the rollers and various components:
Use a multi purpose SAE grease, high performance and extreme pressure (EP).
"SAELEN BIOPLEX "

2) Hydraulic oil:
Use an oil of grade AFNOR NFE 48600 Types HV iso VG 46
"MINERVA BIO HYDRO 46 "

3) Hydraulic coupler oil:
Use an oil of grade AFNOR NFE 48600 Types HV iso VG 46
"MINERVA BIO HYDRO 46 "

4) Motor oil **petrol model**:
Use an oil grade SAE 10W30 meeting standards: API CF4/SJ
ACEA E_2-96 issue 3

Motor oil **diesel model**:
Use an oil grade SAE 15W40 meeting standards: API CF4/SJ
ACEA E_2-96 issue 3

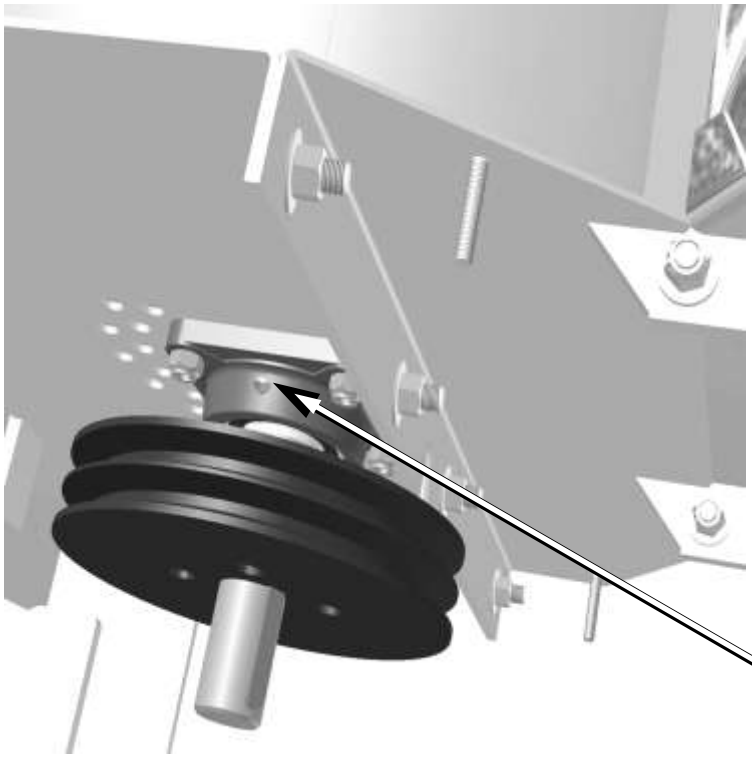
MAINTENANCE PERIODICITY

For further information concerning the maintenance of petrol or diesel engines; please refer to the engine manufacturer's manual that comes with the machine.

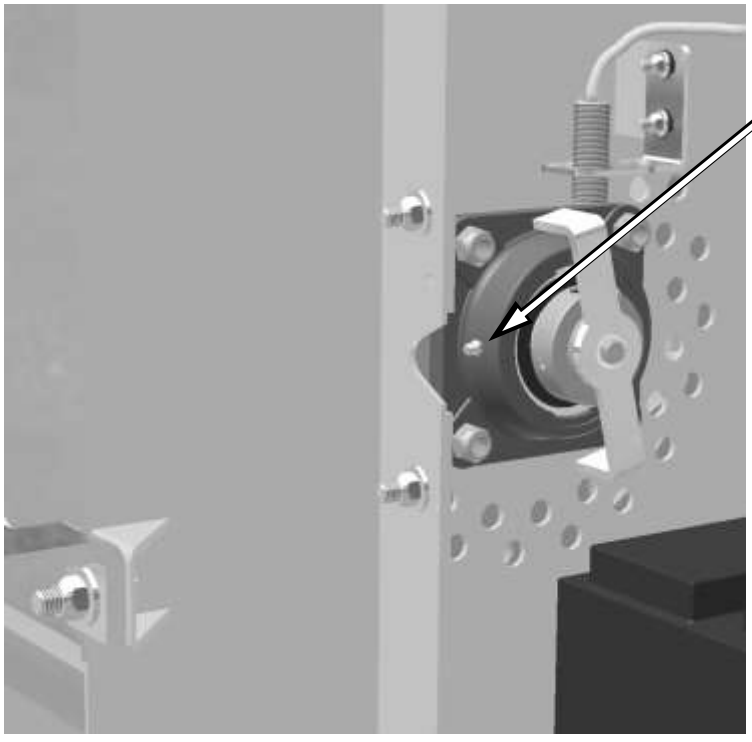
# of hours	Servicing
Daily	-Check engine's oil level -Check air filter's cleanliness -Check cleanliness of engine's air cooling circuit cylinder's air intake grid (petrol model) -Check cleanliness of engine radiator's honeycomb (diesel model)
Every 50	-Check of knives and hammers -Check tension of rotor's transmission belts -Lubrication of the feed roller bearings -Check and remove the branches winding around the bearings' axes and the hydraulic motors
Every 100	-**Check tightening of coupler head's articulation joints**
Every 200	-**Verification wear rings hammers** -Change hydraulic oil filter **the first time** and afterwards every 500 hours (or every 2 years) -Check wear of the counter-knife
Every 300	-Check battery's electrolyte level -Check alternator belt's tension (diesel model) -1st coupler oil change, then every 1000 hours (or every 2 years)
Every 500	-Change hydraulic oil (or every 2 years) -Change hydraulic return oil filter (or every 2 years) -Replacement of hydraulic oil's suction strainer (see page 37)

LUBRICATION POINTS

Proceed to the lubrication and maintenance of the machine engine stopped and ignition key removed.

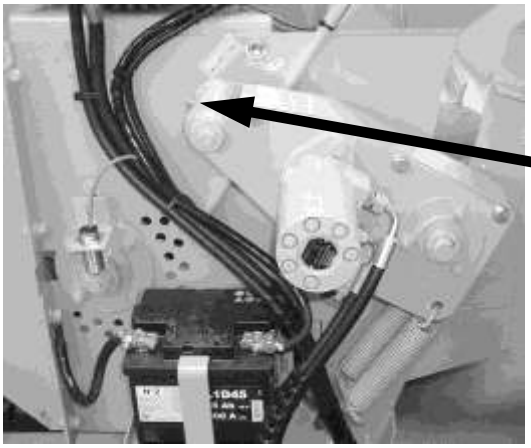


LUBRICATING THE ROTOR BEARINGS

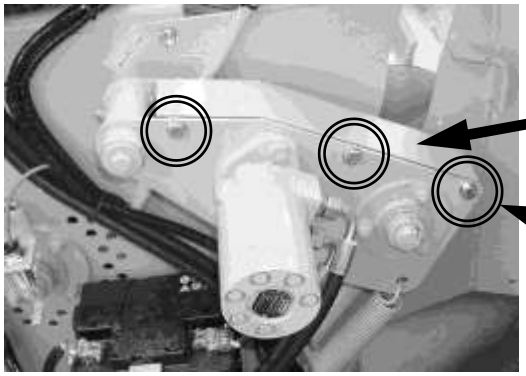


LUBRICATION POINTS

Proceed to the lubrication and maintenance of the machine engine stopped and ignition key removed.

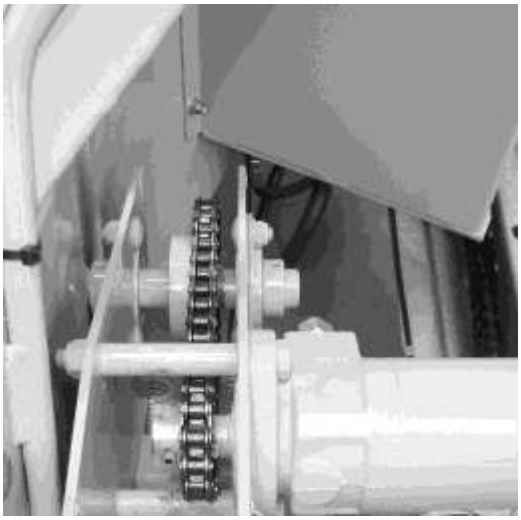


LUBRICATION OF THE DOUBLE RING OF THE FEEDER'S ARTICULATION



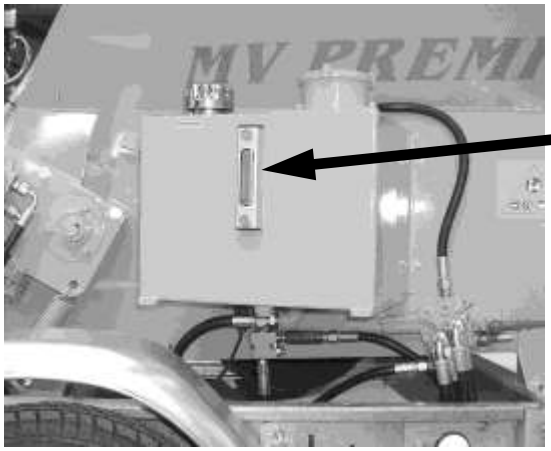
LUBRICATION OF THE FEED ROLLER'S DRIVE CHAIN

To access the feed roller's drive chain; remove the three screws of the feeder arm's cover.



Beings the chain runs at low speed it has no extender. If the clearance becomes too important a false link can be removed, after which it will have to be changed

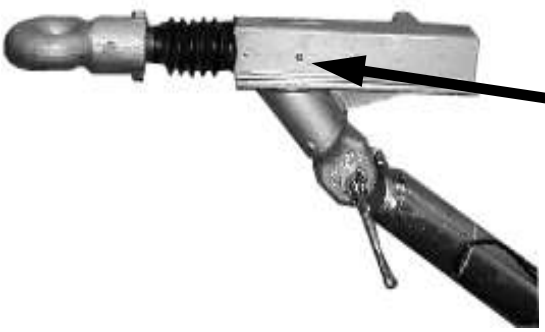
MAINTENANCE



HYDRAULIC RESERVOIR'S LEVEL

PETROL ENGINE'S OIL GAUGE

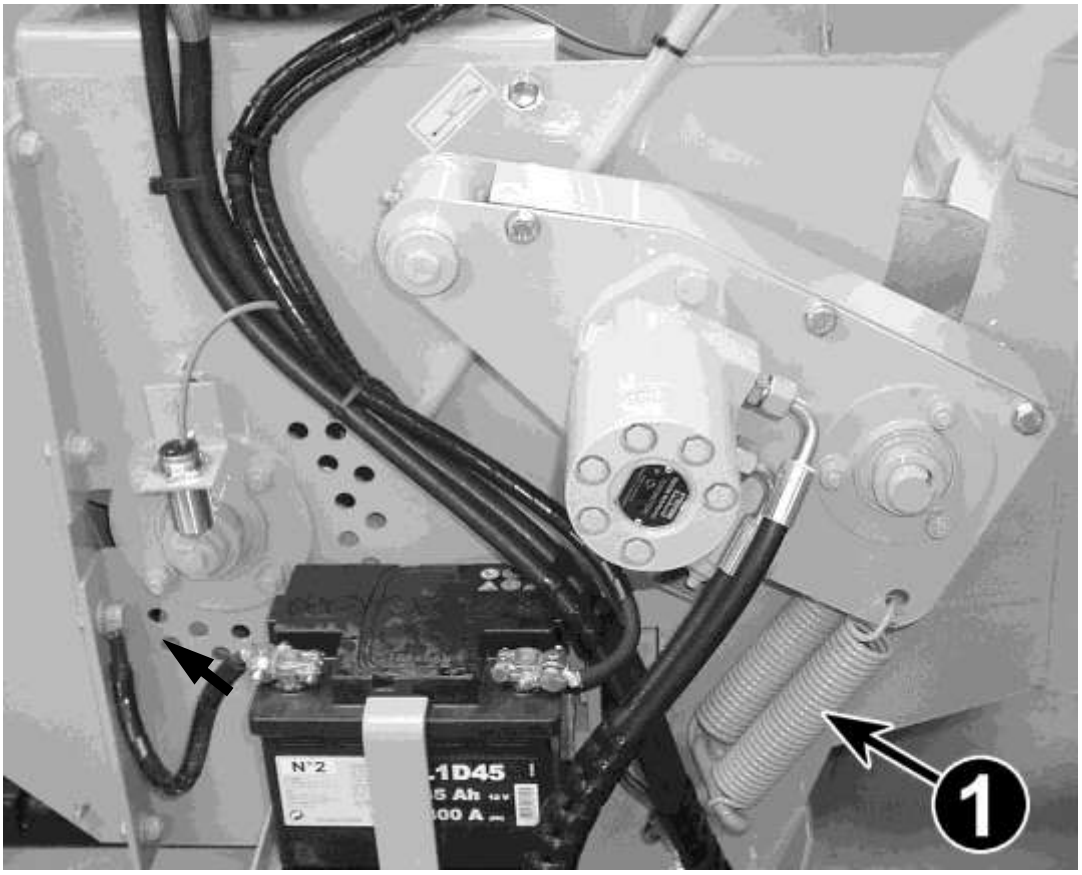
DIESEL ENGINE'S OIL GAUGE



COUPLER HEAD
on braked ER model and DRI

FEEDER'S PRESSURE ON THE MATTER

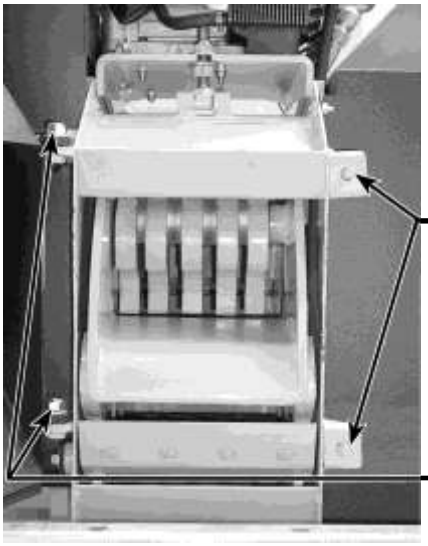
The feeder exerts pressure on the matter owing to its springs **(1)**.



MAINTENANCE

CONTROL BLADES AND HAMMER INSERTS

Remove the ignition key before proceeding.



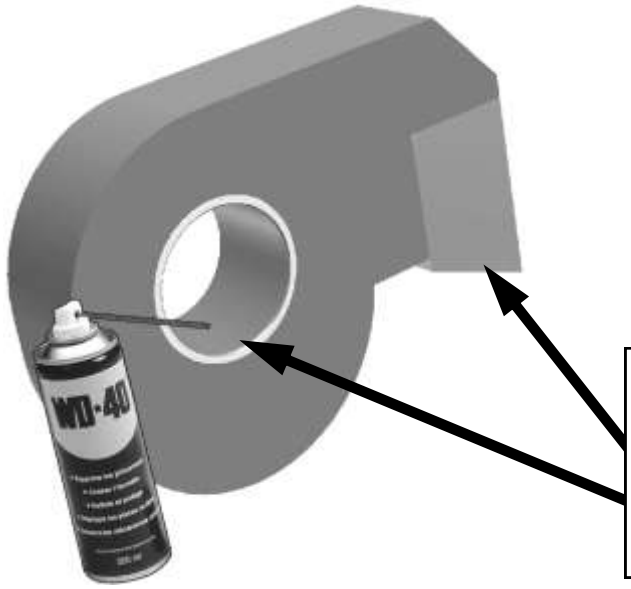
ACCESS TO ROTOR:

In order to gain access to the rotor:

-Remove the two Nylstop nuts

-Open the chute by rotating it on the two articulations

For easier maintenance, henceforth the hammers are mounted without lubricator but with special wear rings.
The lack of lubricators on the hammers however should not stop you from inspecting the hammer discs and blades on a regular basis.



Upon inspection, check whether the hammers are rotating freely.
In case there is a coarseness, spray penetrating grease onto the axles and tap the hammer(s) using a mallet.

Frequency of inspections:

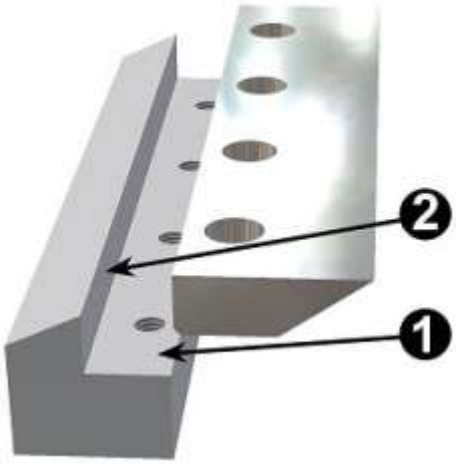
- control blades and hammer inserts : 50h
- Verification wear rings hammers: 200h

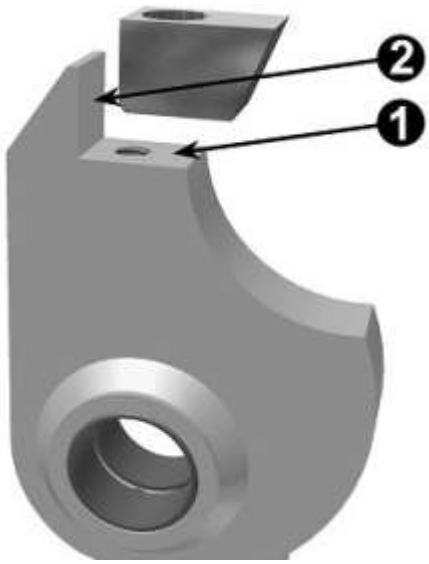
MAINTENANCE

DISASSEMBLY TO REPLACE THE BLADES AND THE HAMMER INSERTS

Remove the ignition key before proceeding.

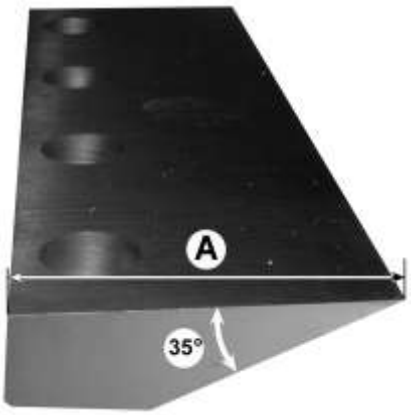
-The hollow hexagonal screws of the blades and hammer inserts are mounted at the manufacture **without Loctite at a torque of 16 M. Kg (157 N.m).** Use the appropriate wrench that is in good condition to remove them.
-Open the chute as described on previous page.
-Remove the screws from blades and inserts. (For the assembly later on, only use the news screws **category 12.9**).
-Clean the contact surfaces of the blades and the inserts clean at the base **(1)** as well as the wall **(2)**.





-Install identical or newly ground blades.
IMPORTANT: the blades must be ground by a professional using specific tools, and not with a grinding disc. Make sure tha 35° angle of the cutting edge is respected. The minimal lengt of **A** should not be smaller than 50 mm after grinding. (The length of a new blade is 60 mm).

-Tighten the screws category 12.9 to 16 M.kg torque (157 Nm),
and make sure the blades and inserts lean against the wall.



-Close the chute and the covers.
-Start the engine and warm it during a few minutes.
-Accelerate to maximum speed to make sure no abnormal vibrations disturb the functioning of the machine.

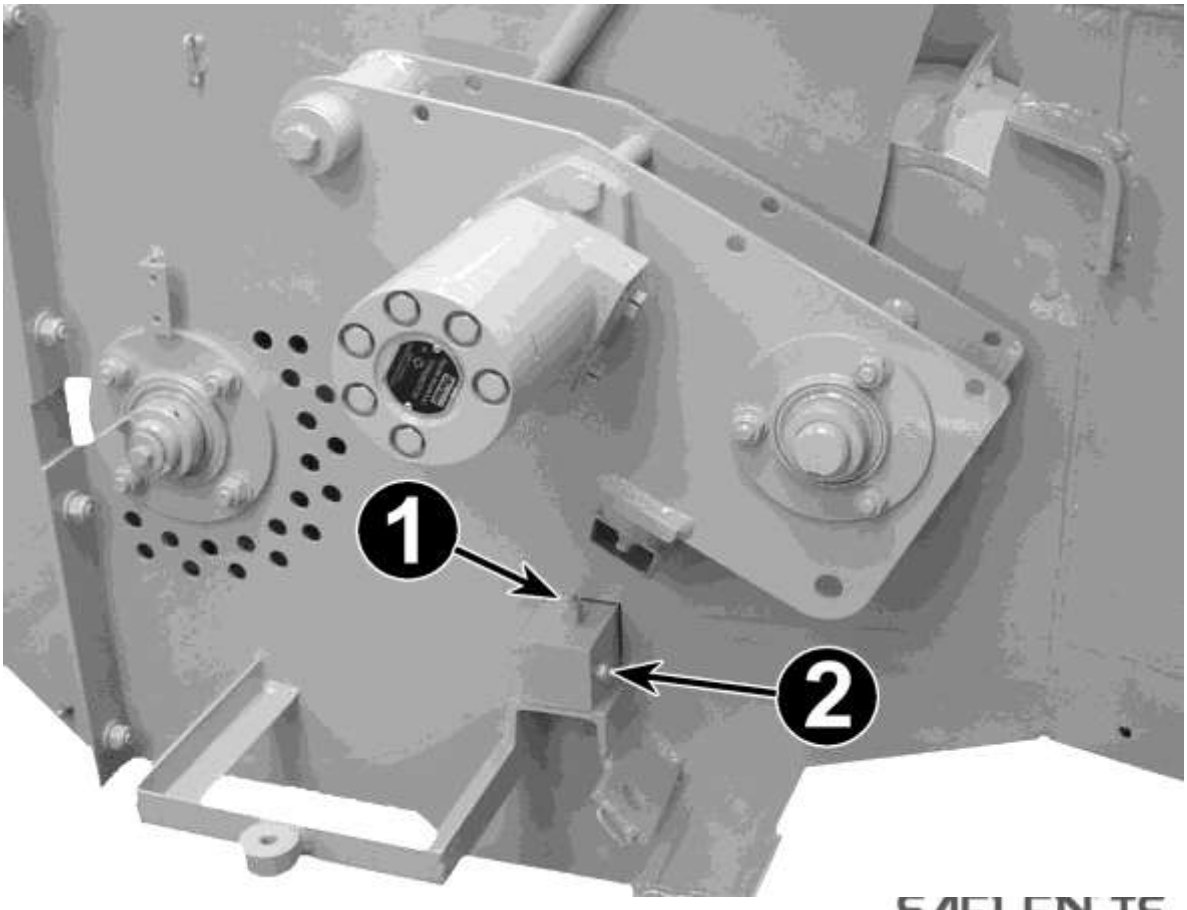
DISMANTLING TO CONTROL THE COUNTER-BLADE

Imperatively remove the ignition key for this type of servicing

-Remove the two attachment bolts diam.12 **(1)** as well as the two safety bolts **(2)** diam.8 at each end of the counter-knife.

-Drive it out by sliding it in its housing on either side. If the edge is worn out; completely remove the counter-knife from its housing, and remount it by shifting it a quarter turn so as to show a new edge facing the knives.
(Each of the counter-blade's four edges can be used)

-Reinsert the two bolts **(1)** and **(2)**.

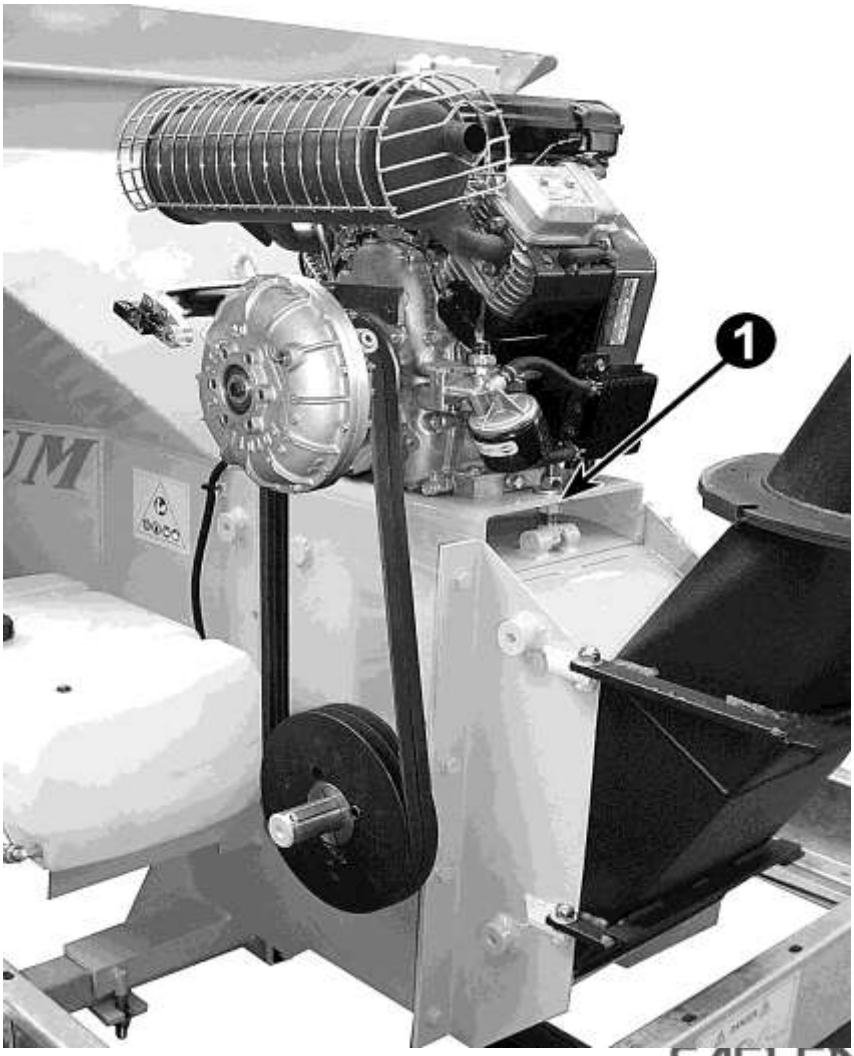


ADJUSTMENT OF THE ROTOR'S BELTS

The rotor's belts are permanently kept extended by an extender.

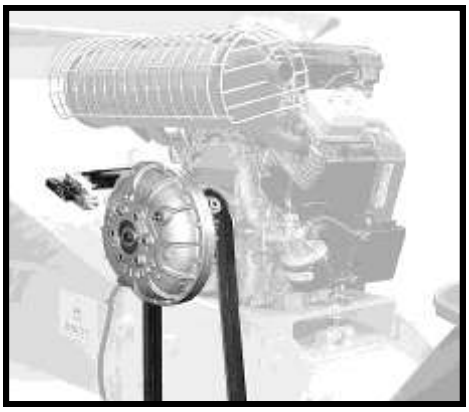
The adjustment of the belts' tension is done through the pivoting of the engine's support plate while acting on the extender **(1)**.

This procedure should be carried out by a qualified technician.

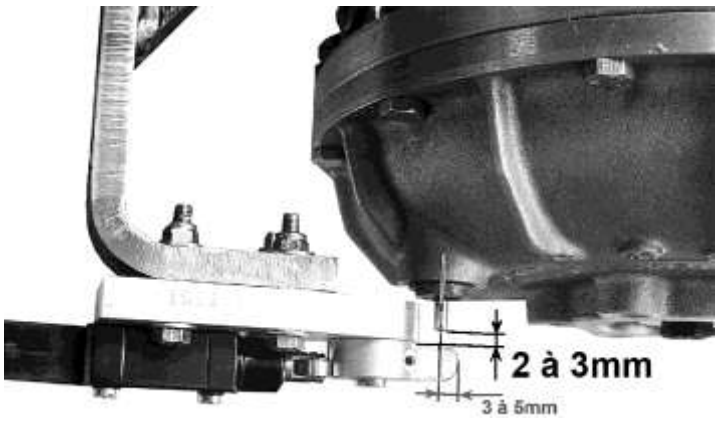


HYDRAULIC COUPLER MAINTENANCE

The Premium ER and DRI are fit out with a hydraulic coupler that needs no special maintenance with a usual functioning.



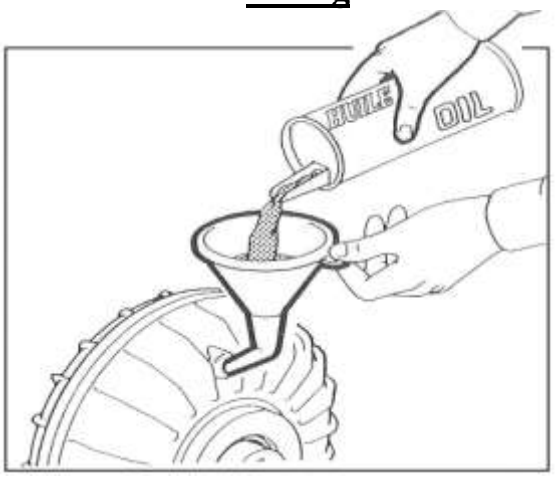
Positioning the security contactor



Oil change

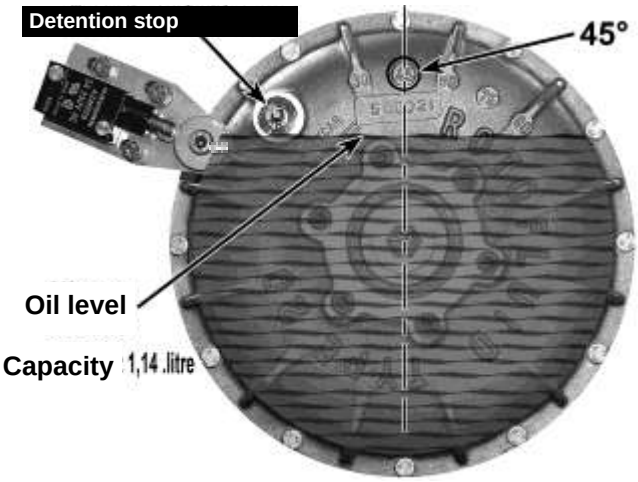
After turning the green fuse cap downwards, put it off to change oil.

Filling



Refill the oil (1,14l.) by the detention stopper or the green fuse cap

Oil level



Place the mark 45 (corresponding to a filling of 45°) vertically to the axe of the coupler. Remove the detention stopper, for the right level the oil must be just under the hole

MAINTENANCE

ADJUSTMENT OF BREAKING TRANSMISSION

Important quote: <u>the handbrake lever must only be used as parking brake</u>

The adjustment should always be done going from the brakes towards t the brake controls

1 - ⚠ After mounting the wheels on the axle, make the wheels turn in FORWARD DRIVE (for **all brakes of <u>RA 2 type, make sure the setting screw 8 comes in "FRONT" stop on the brake flange).**

2 - Complete the brake setting with the screw 8, the cables not connected to the crossbar(s). The jaws should lightly rub against the brake drum.

3 - Connect the brake cables to the crossbars and tighten the nuts and counter nuts, letting the end of the threaded end-piece stick out by about 10 mm **(Fig.2)**

ATTENTION: the cables, as far as possible, should cross in order to have the largest possible sheath curve **(Fig.3)**.

4 - Make sure the parking lever is in **"RELEASED"** position and that the compensating spring **4** is completely free on its rod (loosen all nuts to the maximum **5**).

5 - Check that the hook's slide **2** is not compressed and that the clevis **3** is in pulled position.

6 - Mount the transmission and set the whole with the tightener **6** up to obtaining a clearance (J1) of 1 mm at the most between the connecting rod **9** and the slide **2**.

7 - Adjust the compensating spring **4** by placing it, one side resting on the counter plate and the other side, leaving 2 mm of clearance (J2) at the most between the spring and the nuts 5.

8 - Tighten all the counter-nuts.

9 - Checking the settings (the trailer being on props)**.**
a) pull the parking lever by **2 notches**: wheel rotation in **FORWARD** run is not possible.
Wheel rotation in **REVERSE** run is possible (setting screw 8 passes in **(REVERSE)** position.
b) Pull the parking lever completely: the wheels cannot rotate either in **FORWARD** or **REVERSE** run and the crossbars must remain parallel to the axle.

10 - Check the transmission's settings after 300 km (breaking-in period) and if needed, adjust the clearance **(J1)** with the tightener (see point **6**).

forward run

Brake rear view

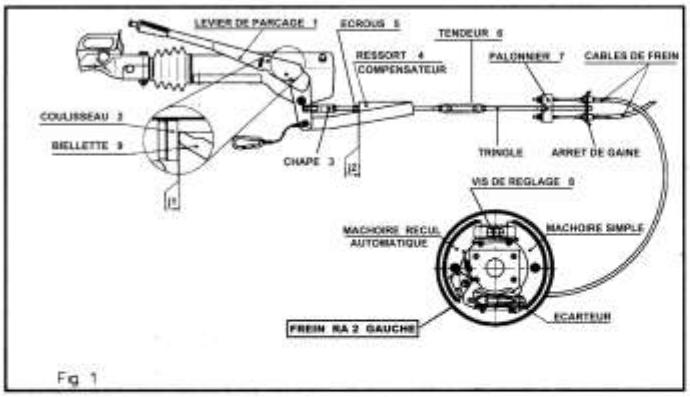
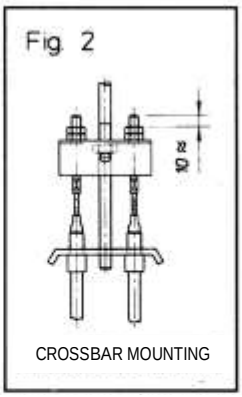
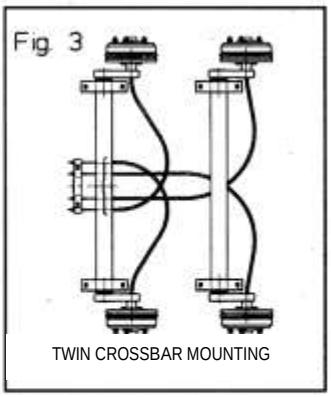


Fig. 1



CROSSBAR MOUNTING



TWIN CROSSBAR MOUNTING

PARKING: The parking lever should be pulled completely, so as to compress the compensating spring at maximum.
Periodically check (l 500 km) the brake settings and distribution to all the wheels.
IMPORTANT: The brake controls are designed for towing trailers behind cars with flexible suspension systems In case of use behind a heavy truck, obligatorily foresee the locking ball mounted on shock absorber to avoid premature wear.
When driving (trailer hitched), **never turn at a 90° angle** nor force in reverse run.
The characteristics of our brake controls are described on a manufacturer's plate the references of which should be noted in case of an order for spare parts, especially the shock absorber, of a special type, approved by the Vehicles Registration to correspond to European standards (it is advised to have a spare shock absorber that will allow instant servicing)

Check braking system settings after about three hundred kilometres

DESCRIPTION AND MANIPULATION

ENGINE AND CONTROL PANEL DESCRIPTION

22P model: petrol

(2) Accelerator lever
(7) Hour meter/revolution counter
(15) Pressure-contact oil pressure security
(16) Battery charge red light

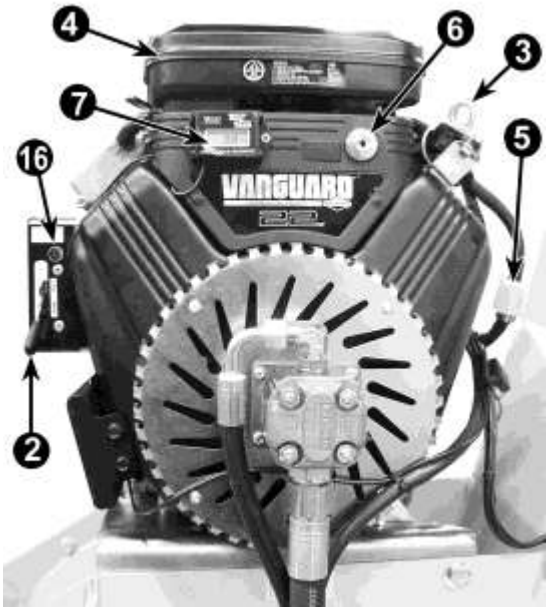
Common markings:

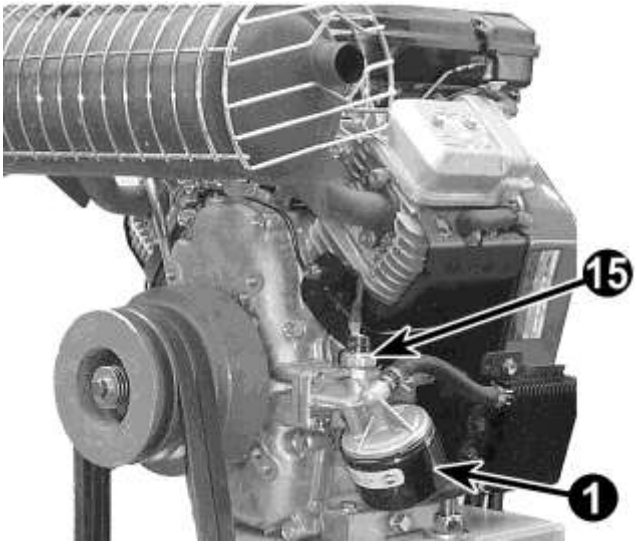
(1) Oil filter
(3) Oil gauge
(4) Air filter
(5) Fuel filter
(6) Ignition key

DRI model: diesel

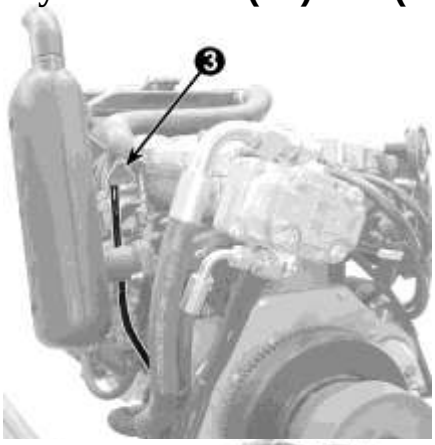
(8) Hour meter
(9) Battery charge light
(10) Water temperature light
(11) Oil pressure light
(12) Starter preheating light
(13) Air filter clog light
(X) *Light signals not used*

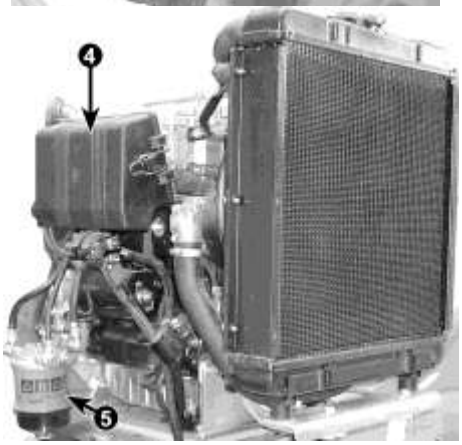
Engine stop in case of anomaly detected by controller (15)

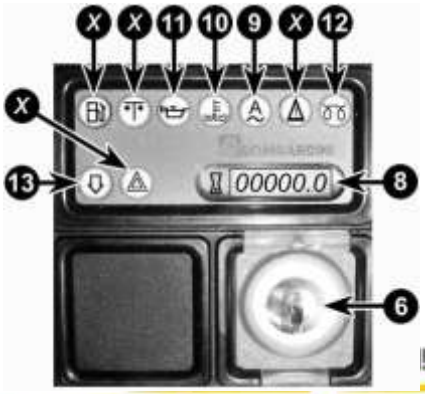




Engine stop in case of anomaly detected by controllers (10) and (11)







THE RESERVOIRS

The machine has two reservoirs:

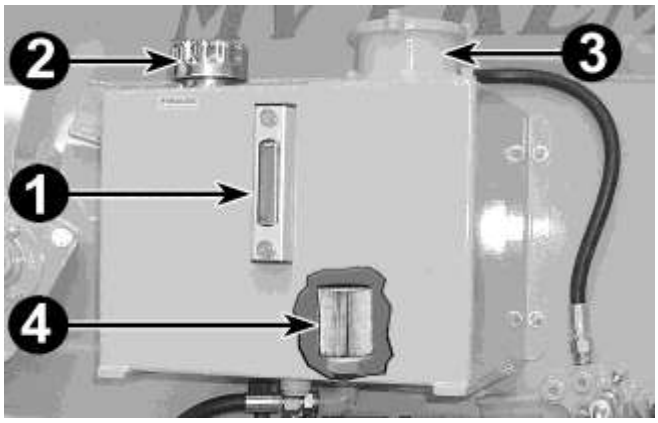
-the **hydraulic oil reservoir** including:

-The level gauge **(1)**

-The filler cap **(2)**

-The hydraulic return filter **(3)**

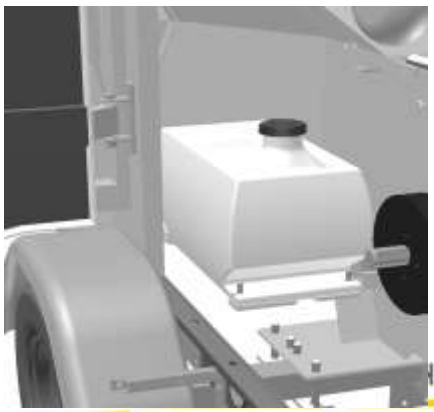
-The suction strainer **(4)** in the reservoir (accessible by removing the filter **(3)** completely)



-The **gas-oil reservoir** placed on the right side of the shredding unit

Petrol version

Diesel version

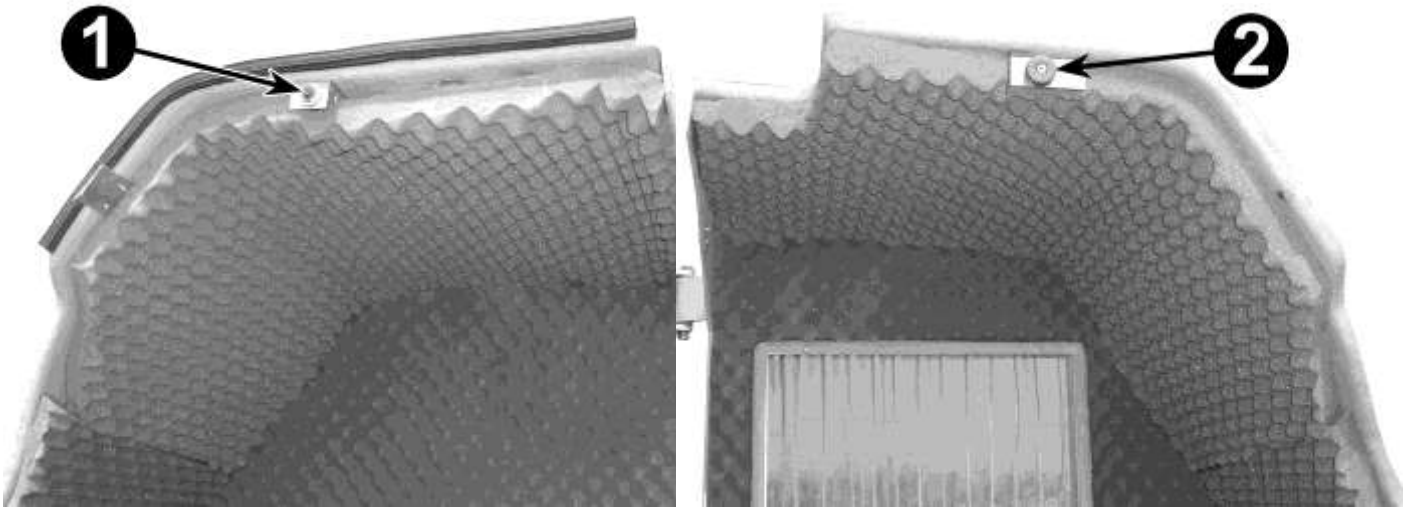


PREMIUM DRI BONNET SECURITY

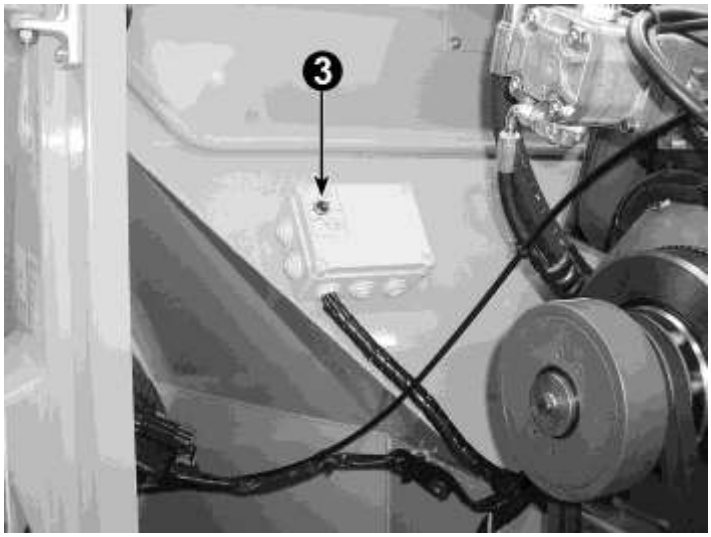
The machine has security devices on the opening of hoods:

An inductive pick-off **(1)** placed on the hood's right door. The electric contact is made when the magnet **(2)** fixed on the left door of the hood is approached.
When you open either one of the doors the security device stops the diesel engine.

There should be no physical contact between the pick-off and its magnet. On the other hand, respect a functional clearance between the two of 5 to 15mm.



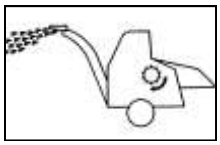
To do servicing on the engine and have it run with the hood open **(servicing done only by the technician trained to that purpose),** the device can be neutralized by acting on the contactor **(3)** (see operating on next page)

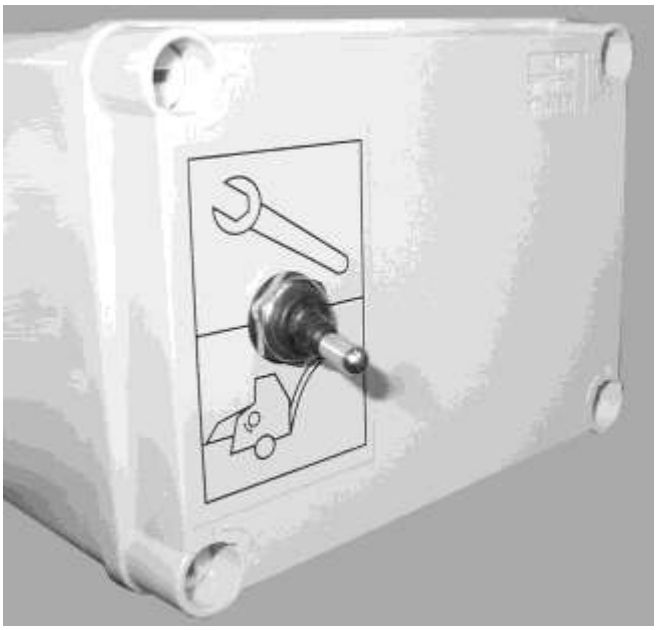


DESCRIPTION AND MANIPULATION

MAINTENANCE / OPERATING CONTACTOR

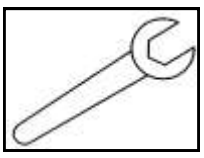
In normal operation the Operating/ Maintenance contactor in the lower position (operating position)

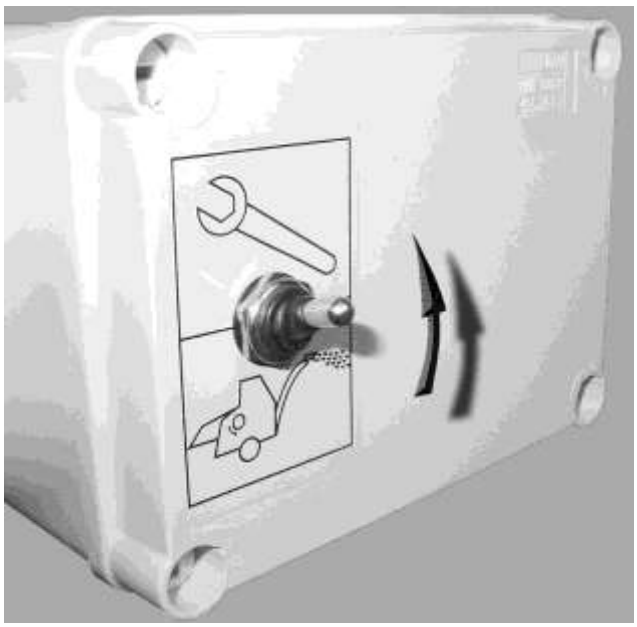




When one opens the engine's hoods in operation, the captor located at the top of the right door provokes the diesel motor's stop.

When one has to do servicing on the engine and run it with the hood open **(servicing only by a technician trained to that purpose)** the device can be neutralized by toggling the switch on the distribution box in upper position (Maintenance position)





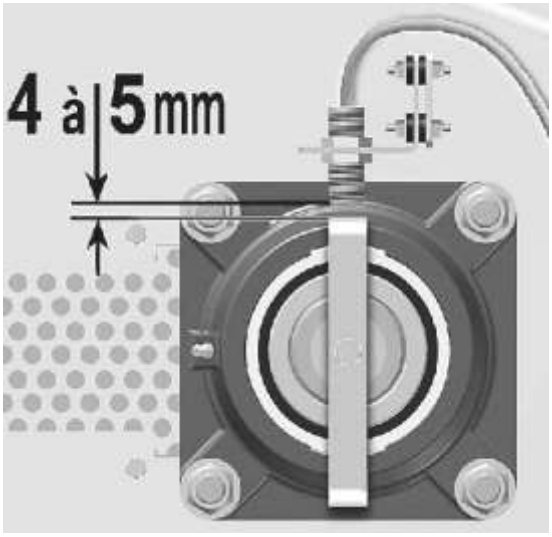
N.B.: In that position the engine can run but the feed roller will not rotate whatever the engine's speed. If after servicing the technician forgets to re-toggle the switch in lower position, the user will not be able to run the machine. He will be obliged to re-toggle the contactor in operating position and close the hoods to be able to start the engine.

DESCRIPTION AND MANIPULATION

VarioStress ANTI-JAM SYSTEM

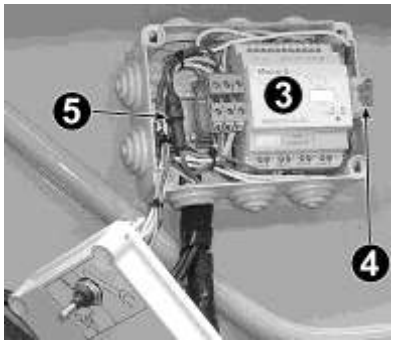
The PREMIUM is equipped with a controller of the rotation of the rotor that is linked to an automat. Hence, we can prevent the machine from being blocked: permanent information about the rotating speed of the rotor is being sent to the VarioStress. When the rotor speed falls below a factory-set threshold, the hydraulic supply of the feed is interrupted. The feed and belt will stop, the machine will no longer be fed material and the engine can reach its working speed agian (3600T/mn). When the speed exceeds the lower threshold, the feed roll and belt are supplied with oil again and the engine starts running again.

There are three anti-obstruction settings: see the next page

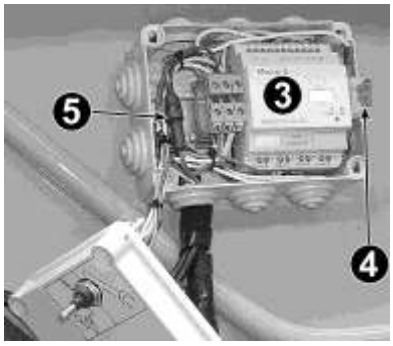


The distance between the speed controller **(1)** and the pulse device **(2)** is **0,16 to 0,20 in (4** to **5 mm)**.

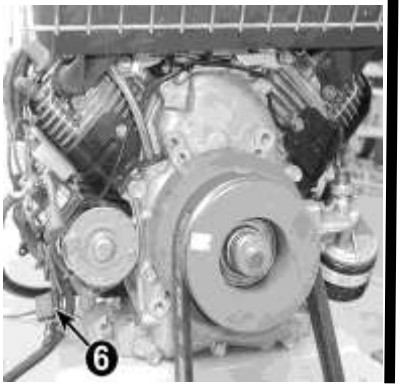
PETROL

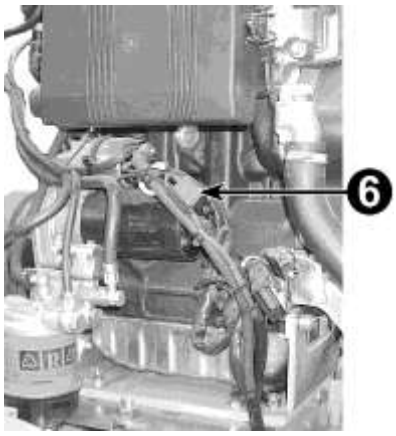


DIESEL



An automate **(3)** controls the anti-jam system's electro valve. It is with the 10Amp and 1 Amp protection fuses **(4)** and **(5)** in the conduit box behind the engine on the front side of the hopper.
The primary circuit's 10Amp protection fuse **(6)** is in the watertight fuse-holder compartmentalized on the starter cable.





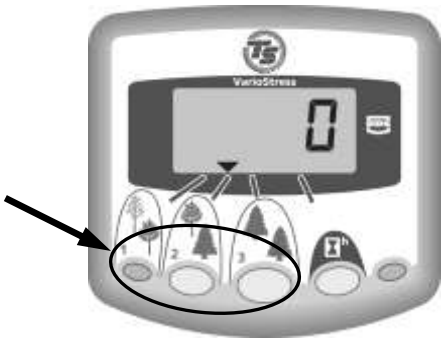
See Use of the machine in manual mode on page 53
+ intervention technician p.46

DESCRIPTION AND MANIPULATION

ANTI-OBSTRUCTION SYSTEM VarioStress:

Different settings:

The VarioStress anti-obstruction system has three preset configurations. The user can choose the one that is most appropriate for the material at hand.



Configuration **1**: favours functioning at a wide range of motor speeds, mainly suitable for chipping branches and light amterials

Configuration **2**: suitable for manipulating mixed materials consisting of branches, vegetation and conifers.

Configuration **3**: a higher engine speed to improve ventilation for chipping plants and confers or heavy and dense materials during a long period of time

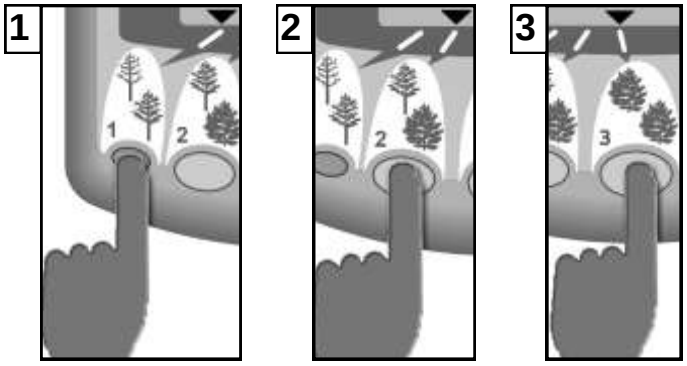
DESCRIPTION AND MANIPULATION

ANTI-OBSTRUCTION SYSTEM VarioStress: cont.

Selecting a setting:

- Engine is on or off, contact is engaged

Use Keys 1,2.3 to display the requested page.



Rem.: push during 1 to 1,5 seconds to change the program.

-Continuous Display of the Engine Rotation/ Operating Speed

-Display of functioning / running hours is done by pressing the ⧗h Key of the Motor (engine off or on)

Functioning/running time count can only be performed if the chipper shredder rotor is in motion

Press the key for about one second

See Use of the machine in manual mode on page 53
+ intervention technician p.46

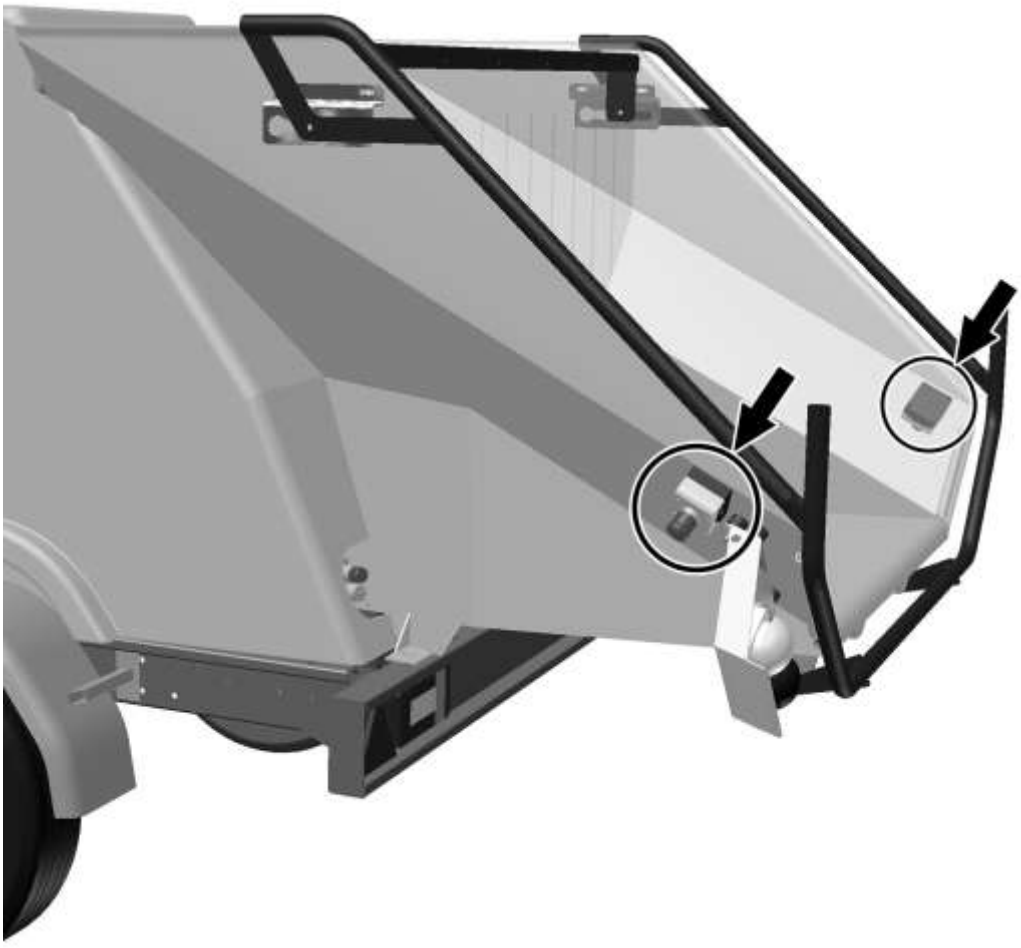
EMERGENCY STOP BUTTONS

The machine also has two emergency circuit breaker buttons placed at the top of each side of the feed hopper.

When they are activated, these emergency circuit-breakers have two functions:

1) stopping the heat engine

2) instantly stopping the forward run of the feed roller



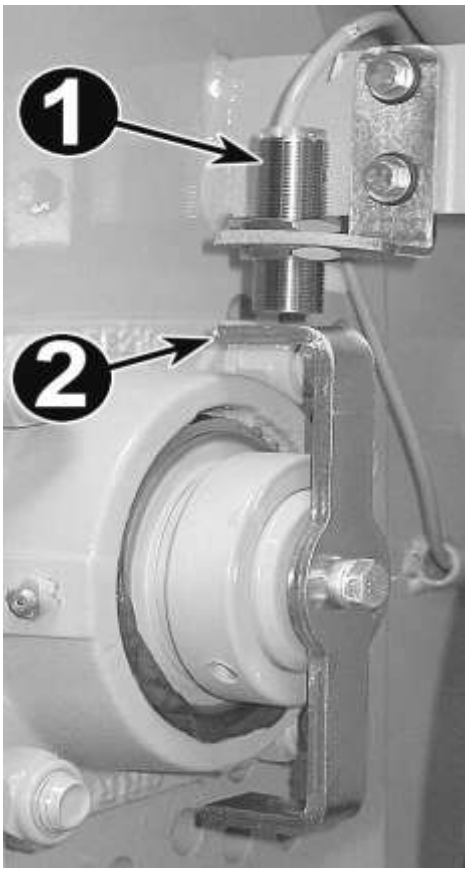
DESCRIPTION AND MANIPULATION

SENSOR NO ROTOR ROTATION

The NoStress sensor **(1)** is also used to monitor the rotating movement and complements the thermal safety (mark **(2)** on the next page**).** It stops the diesel engine by cutting off the fuel supply if the rotor does not rotate after starting the engine.

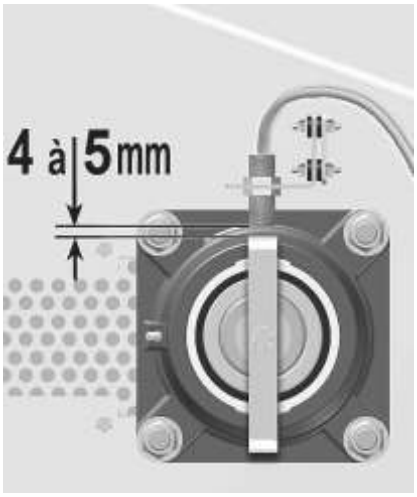
10 seconds after supplying tension if the contact remains switched on without an attempt to start the engine. The electrical power supply from the automaton is interrupted automatically and the engine cannot start.

10 seconds after starting the engine this sensor checks the rotatino of the rotor. If the rotor has not exceeded 60 r/mn after this time (minimale intervention threshold) the sensor will shut the diesel engine down and cut off the electricity supply from the automaton. **Check why the rotor has been blocked** (residual material), **set the contact to zero and restart.**



The distance between the sensor **(1)** and the index **(2)** must be **0,16** to **0,20 in (4** to **5 mm)**..

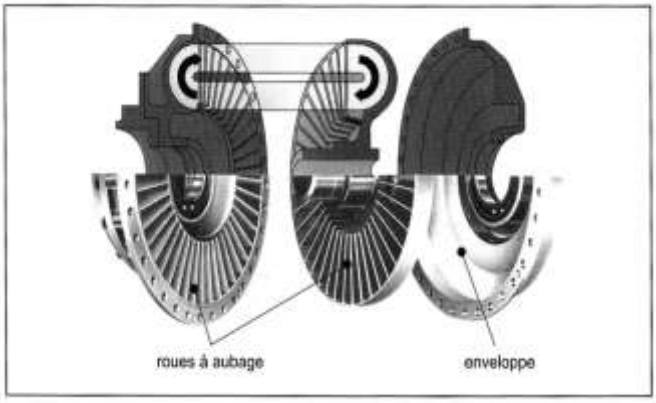
Please note that if the engine stops after 10 seconds, you must always try to find the cause of the problems. Do not try to start the engine multiple times. Since the engine runs during 10 seconds at every attempt, the coupling temperature will continue to rise and activate the safety (2) (next page)



See Use of the machine in manual mode on page 53
+ intervention by technician p.46

DESCRIPTION AND MANIPULATION

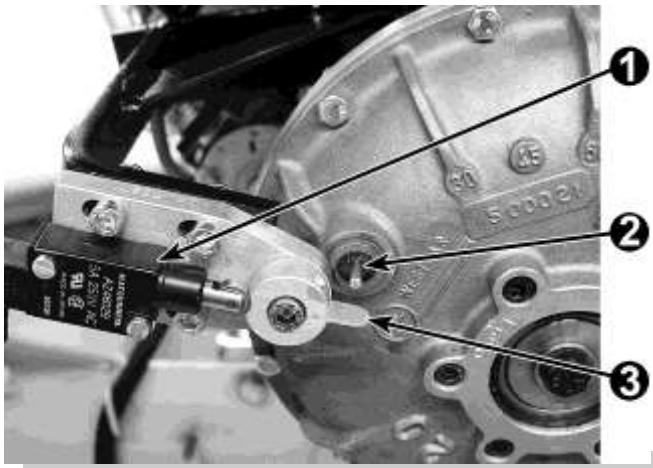
HYDRAULIC COUPLER



PRINCIPLE OF HYDRAULIC COUPLER'S FUNCTIONNING

The Westcar coupler is a hydrodynamic coupler functioning in accordance with Fortinger's principle. It is mainly composed of 2 paddle wheels (the pump-wheel and the turbine-wheel) and an external covering, and the 2 paddle wheels are supported by bearings. The power is almost transmitted without any wearing effect since there are no mechanical contact between the transmission elements. The coupler contains a constant quantity of operating fluid..

The leading motor's mechanical power is changed into kinetic power of the operating fluid in the pump-wheel connected to it. This kinetic power is again transformed in mechanical power in the **turbine-wheel**.



In case of unusual superheating of the oil in the coupler (above 145°C), the thermic element**(2)** releases an axe which will tip over the thermic security contractor**(1)** lever**(3).**

This contractor cuts off the diesel supplying to stop the engine.

In order to be able to start again the engine, it is required to replace the thermic element**(2)** and put the lever**(3)** back to its first position.

If the rotor blocks when starting the machine (rotor blocked by some branches if it was not well emptied after previous use for example), this contactor is not operational any more. The oil temperature will quickly rise and the oil will be evacuated outside through the core of the green fuse-cap, which is supposed to melt with a temperature above 180°C.

<u>An extra captor was added to avoid this problem. (see next page)</u>

If the security(2) goes off, you should always look for the cause of the problem and <u>absolutely avoid to start again the engine several time in a row</u>, because the temperature would keep on rising in the coupler and the green fuse-cap would end up melting and pouring out the coupler oil everywhere.
(This security can't be reused and must be replaced by a new one)

PROBLEM-SOLVING

In this section, we have drawn up a list of problems, their causes, and the solutions to bring if eventually you came across one.
The case may arise where you will have to face a problem that is not mentioned in the troubleshooting section, if so please get in touch with your dealer. Make sure you have your user manual as well as your shredder's serial number.

INTERVENTION BY A TECHNICIAN ON THE ELECTRICAL CIRCUIT:
Since 2008 all TE Industrie chippers offer the possibility to shunt rotation controller M18 of the rotor. The technician can then investigate an electrical fault on the machine without starting the engine (see p. 44). The shunt will stop automatically when the contact is broken.
Check the TS Industrie technical customer service in your area or the TS Industrie after sales department. They will explain how to shunt controller M18.

PROBLEM	CAUSE	SOLUTION
The engine does not start	Coupler security engaged	-See pages 44 and 45
	- Security emergency circuit-breaker triggered	- Release it
	-The hood's safety pick-off is defective	-Check it (see p.38)
	-The battery is discharged	-Charge or replace the battery
	-The power supply cables are damaged	-Check the electric circuits
	-Defective (diesel) engine stopping	-Check the solenoid valve
	-Fuse blown in the distribution box	- Replace the fuse
The engine starts and stops 4 seconds later	-Only for **Premium DRI:** cracked fuse (mark 11), p.50	-Check and replace lamp **17** (p.50) if broken
Engine power reduction	-Gas-oil or petrol filter clogged	-Replace the filter
	-Knives and hammers blunted	-Sharpen or replace the knives. Change the hammers' pellets

PROBLEM-SOLVING

PROBLEM	CAUSE	SOLUTION
The engine stops at an untimely moment and does not start again	-The hood is not well shut -Security coupler engaged -The red water-temperature lamp-control is on -The bonnet's security captor is defective -There is no gas-oil any more	-Check if the hood is well shut -See pages 44 and 45 -The radiator is clogged up; clean it -Check the security captor (see p. 38) -Put gas-oil in
The feeder does not operate	**-Work/Maintenance contactor in Maintenance position** -Cracked fuse in the derivation box or in the watertight fuse-holder on the starter -Hydraulic drive or pump defective -Not enough oil in the reservoir -Speed toothed wheel of the feeder tightened right home	**-Switch the contactor to Work position (see p.39)** -Change the fuse -Check or replace the defective part -Check the oil level -Loosen the adjustment toothed wheel on the distributor.
The rotor does not rotate but the engine is running	-Belts defective or not sufficiently tight -Blocked rotor	-Replace and/or tighten the belts -See page 23
The machine has trouble shredding	-Knives and hammers dulled -Belts defective or not sufficiently tight -Anti-jam system unserviceable -The clutch is powerless	-Sharpen or replace the knives. Change the hammers' pellets -Replace and/or tighten the belts -Check the fuse -See your dealer
Feeding in forward operation is not regulated, not even below the VarioStress intervention threshold	-Primary and/or secondary fuse blown	-Replace the fuse (see p.40)

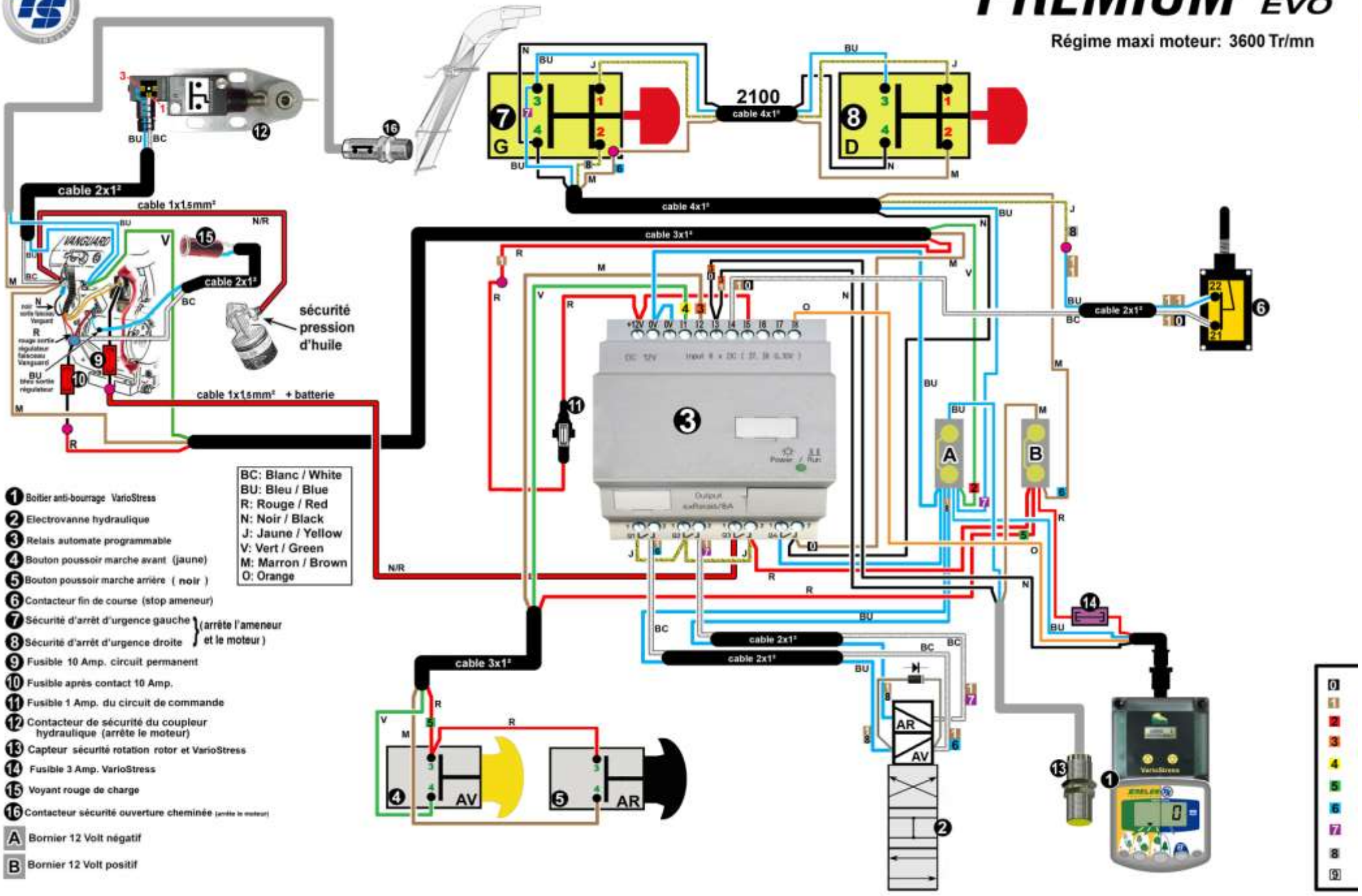
SPECIFICATIONS

	PREMIUM 22P	PREMIUM DRI
Capacity:	100 mm hardwood	100 mm hardwood
Hourly output:	13 m3	18 m3
Length:	3,40 m	3,40 m
Width:	1,68 m	1,68 m
Height:	2,06 m	2,06 m
Poids:	700 Kg	1000 Kg
Number of hammers:	10	10
Number of knives:	2	2
Rotor diameter:	560 mm	560 mm
Rotor's weight:	80 Kg	80 Kg
Rotor's width:	260 mm	260 mm
Engine power:	22 hp petrol	27 hp diesel
Fuel capacity:	30 L	30 L
Engine speed:	3600 Tmn	3600 Tmn
Rotor's speed:	1900 T/mn	1900 T/mn
Anti-jamming:	OUI	OUI
Hydraulic power supply:	OUI	OUI
Hydraulic capacity:	25 L	25 L
Hydraulic pressure:	100 bars	100 bars
Road axle:	OUI	OUI
Number of wheels:	2	2
Tyre dimensions:	145R13	175R14
Air pressure:	2,4 bars	4,0 bars

SCHEMA ELECTRIQUE COMMANDES AMENEUR ET ARRETS D'URGENCE

PREMIUM 22 ER EVO

Régime maxi moteur: 3600 Tr/mn



1. Boitier anti-bourrage VarioStress
2. Electrovanne hydraulique
3. Relais automate programmable
4. Bouton poussoir marche avant (jaune)
5. Bouton poussoir marche arrière (noir)
6. Contacteur fin de course (stop ameneur)
7. Sécurité d'arrêt d'urgence gauche
8. Sécurité d'arrêt d'urgence droite

(arrête l'ameneur et le moteur)

9. Fusible 10 Amp. circuit permanent
10. Fusible après contact 10 Amp.
11. Fusible 1 Amp. du circuit de commande
12. Contacteur de sécurité du coupleur hydraulique (arrête le moteur)
13. Capteur sécurité rotation rotor et VarioStress
14. Fusible 3 Amp. VarioStress
15. Voyant rouge de charge
16. Contacteur sécurité ouverture cheminée (arrête le moteur)

A Bornier 12 Volt négatif

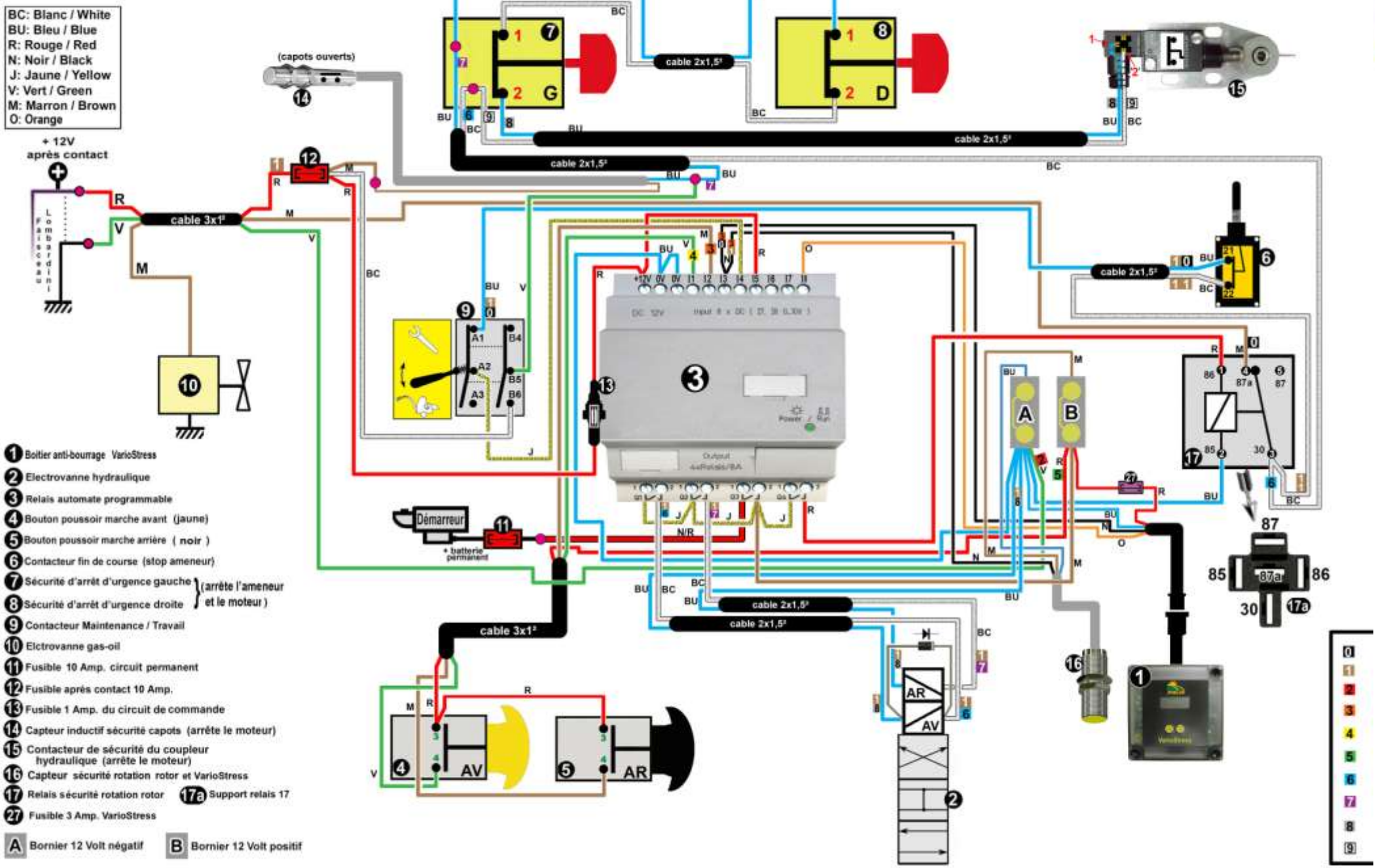
B Bornier 12 Volt positif

SCHEMA ELECTRIQUE COMMANDES AMENEUR ET ARRETS D'URGENCE

à partir du n° 09001

PREMIUM 29 DRI EVO

Régime maxi moteur: 3600 Tr/mn

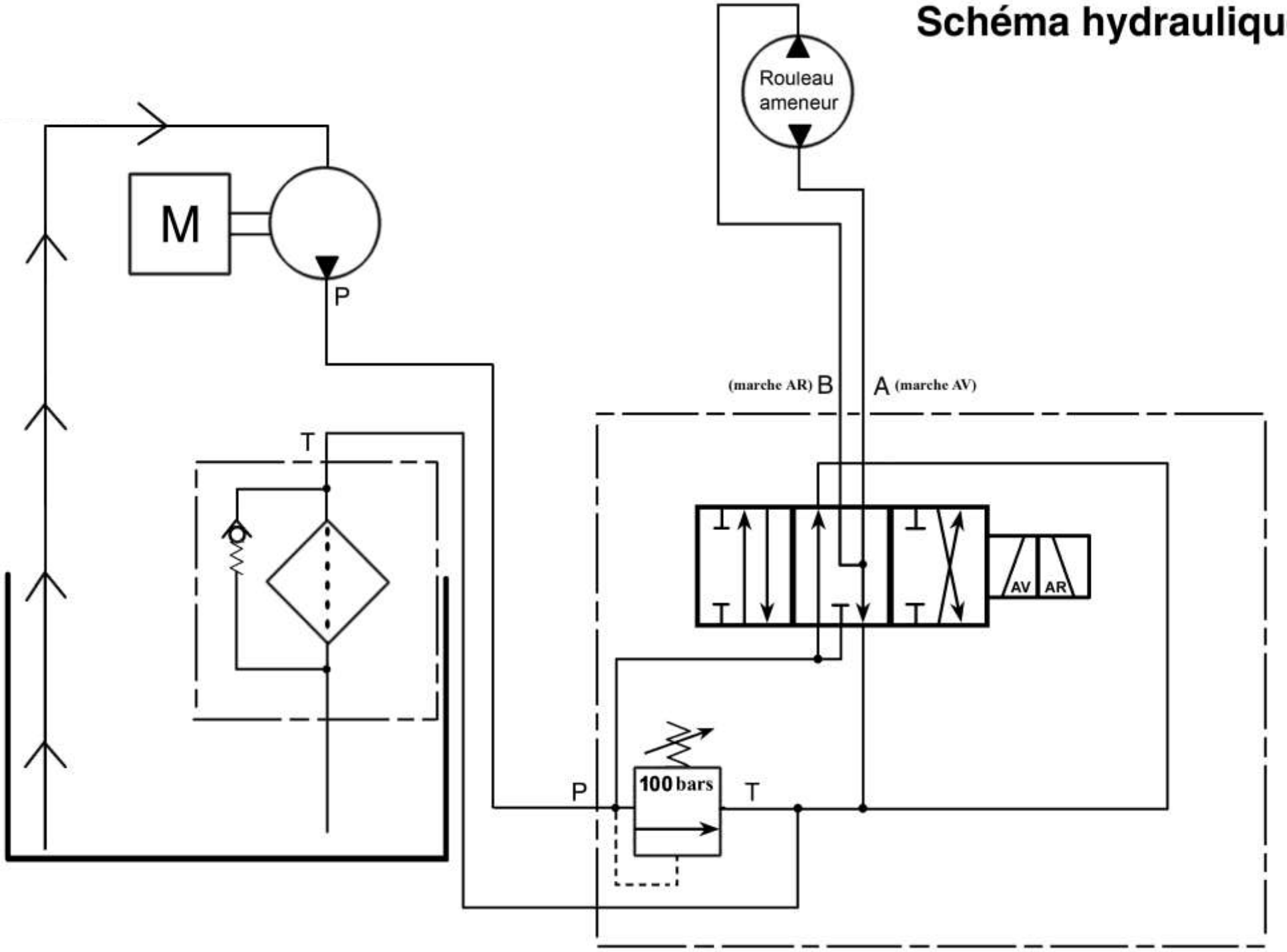


1. Boitier anti-bourrage VarioStress
2. Electrovanne hydraulique
3. Relais automate programmable
4. Bouton poussoir marche avant (jaune)
5. Bouton poussoir marche arrière (noir)
6. Contacteur fin de course (stop ameneur)
7. Sécurité d'arrêt d'urgence gauche } (arrête l'ameneur
8. Sécurité d'arrêt d'urgence droite } et le moteur)
9. Contacteur Maintenance / Travail
10. Elctrovanne gas-oil
11. Fusible 10 Amp. circuit permanent
12. Fusible après contact 10 Amp.
13. Fusible 1 Amp. du circuit de commande
14. Capteur inductif sécurité capots (arrête le moteur)
15. Contacteur de sécurité du coupleur hydraulique (arrête le moteur)
16. Capteur sécurité rotation rotor et VarioStress
17. Relais sécurité rotation rotor — 17a Support relais 17
27. Fusible 3 Amp. VarioStress

A Bornier 12 Volt négatif

B Bornier 12 Volt positif

Schéma hydraulique

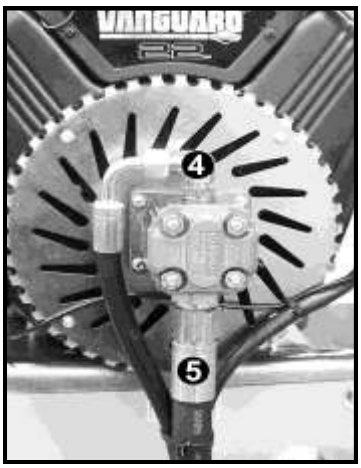


HYDRAULIC COUPLING

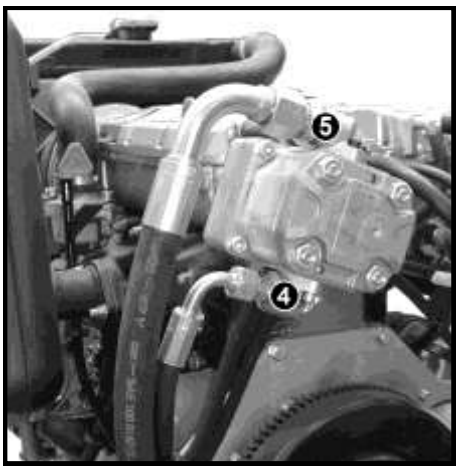
PREMIUM 22P and DRI

HYDRAULIC HOSES CONNECTIONS

❶ = lg.1500 / ❷ = lg.1500 / ❸ = lg.800 / ER: ❹ = lg.1950 / ❺ = lg.1450
DRI: ❹ = lg.2100 / ❺ = lg.2000



ER



DRI

SPECIFIC FUNCTIONING

USE OF THE MACHINE IN MANUAL MODE

The sensor of the rotation of the rotor and shunting the VarioStress

On the PREMIUM as well as on the models VIPER and COBRA it is possible (since 2008) to shunt the electronics in the machine by switching to **manual mode** in case of problems on sensor M18 that monitors the rotation of the rotor or on the VarioStress anti-obstruction equipment. Using a simple procedure **(not described in this manual)** the operator can continue to use the machine while he waits for a technician to come and solve the problem.

Contact your reseller for this procedure.

In case of problems on the M18 or Vario Stress :

Dhe M18 sensor has a double function:

-give the VarioStress that manages the anti-obstruction system of the rotor rotary speed
-give the atuomaton that stops the engine in case the rotor is blocked at the start rotary speed (see p.44).

- In case the sensor is defect, the engine will stop
- In case the VarioStress is defect, the feed roll will provide forward rotation, in spite of the engine speed.

Solution:
The user can shunt this sensor and the VarioStress by working in **manual mode** but he ***must remain vigilant*** and check if the ***rotor is free*** and starts to rotate ***as soon as the engine is started***.
If the anti-obstruction system is not working, the **manual mode** also allows the operator to make the belt/roll work by using the yellow and black buttons. Even at low speeds the feeding equipment can continue to work, ***so the user must remain vigilant if he handles the feeding of the branches in the rotor himself in function of the engine speed***.

Take care not to let the engine speed drop too low while chipping in order not to overload the hydraulic coupling (see p. 45) or to block the rotor at the discharge.

Breaking the contect when the machine is stopped, resets the manual mode.
If the technician has not replaced the faulty part by the next start, the user must repeat the shunting procedure.

DECLARATION OF CONFORMITY

THE ***TS industrie*** Company

3 rue Jules Verne
L'Orée du Golf
59790 RONCHIN FRANCE
Tél. : 0.820.201.880 - Fax : 0.820.201.990

DECLARES HEREIN THAT THIS MACHINE:

Trademark: *TS industrie™*
Type: **PREMIUM 22 ER**
Engine power output: **16 kW**
Technical documentation detained by Stéphane MORBU

that the product complies with the following European directives:

- **2006/42/CE** " EG-Maschinenrichtlinie" Norm
- **2004/108/CEE** "Elektromagnet" Norm
- **97/68/CE** "Vergiftung" Norm
- **2000/14/CE** "Schall" Norm

Technical conformity appraisal concerning directive 2000/14/EC Appendix V.

Installed power at 3600 rpm	*Noise Power Level Acoustique mesurée*	*Guaranteed noise Power level (Lwa)*
16 Kw	123 dBA	**126 dBA**

References of harmonized standards used:

- **EN 13525/A2**

Signed in RONCHIN, on September 6th 2010

Stéphane MORBU (Manufacturing Engineer *TS-industrie*)

DECLARATION OF CONFORMITY

THE ***TS industrie*** Company

3 rue Jules Verne
L'Orée du Golf
59790 RONCHIN FRANCE
Tél. : 0.820.201.880 - Fax : 0.820.201.990

DECLARES HEREIN THAT THIS MACHINE:

Trademark: *TS industrie™*
Type : **PREMIUM 29 DRI**
Engine power output: **21 kW**
Technical documentation detained by Stéphane MORBU.

that the product complies with the following European directives:

- **2006/42/CE** " EG-Maschinenrichtlinie" Norm
- **2004/108/CEE** "Elektromagnet" Norm
- **97/68/CE** "Vergiftung" Norm
- **2000/14/CE** "Schall" Norm

Technical conformity appraisal concerning directive 2000/14/CE Appendix V.

Installed power at 3600 rpm	***Noise power level measured***	***Guaranteed Noise Power Level (Lwa)***
21 Kw	123 dBA	**126 dBA**

References of harmonized standards used:

- **EN 13525/A2**

Signed in RONCHIN, on September 6th 2010

Stéphane MORBU (Manufacturing Engineer *TS-industrie*)

Saelen
3 rue Jules Verne
L'Orée du Golf - BP 17
59790 Ronchin
Tél : + 33 (0)3 20 43 87 87
Fax : +33 (0)3 20 34 12 73
contact@saelen.fr www.salen.Fr

Pièces détachées
Tél : + 33 (0)3 20 43 24 89
Fax : +33 (0)3 20 34 12 73

TS Industrie
TS Industrie GmbH
Weserstr. 2
D - 47506 Neukirchen - Vluyn (Germany)
Tel.: +49 2845 / 9292-0
Fax: +49 2845 / 9292-28
kontakt@ts-industrie.de